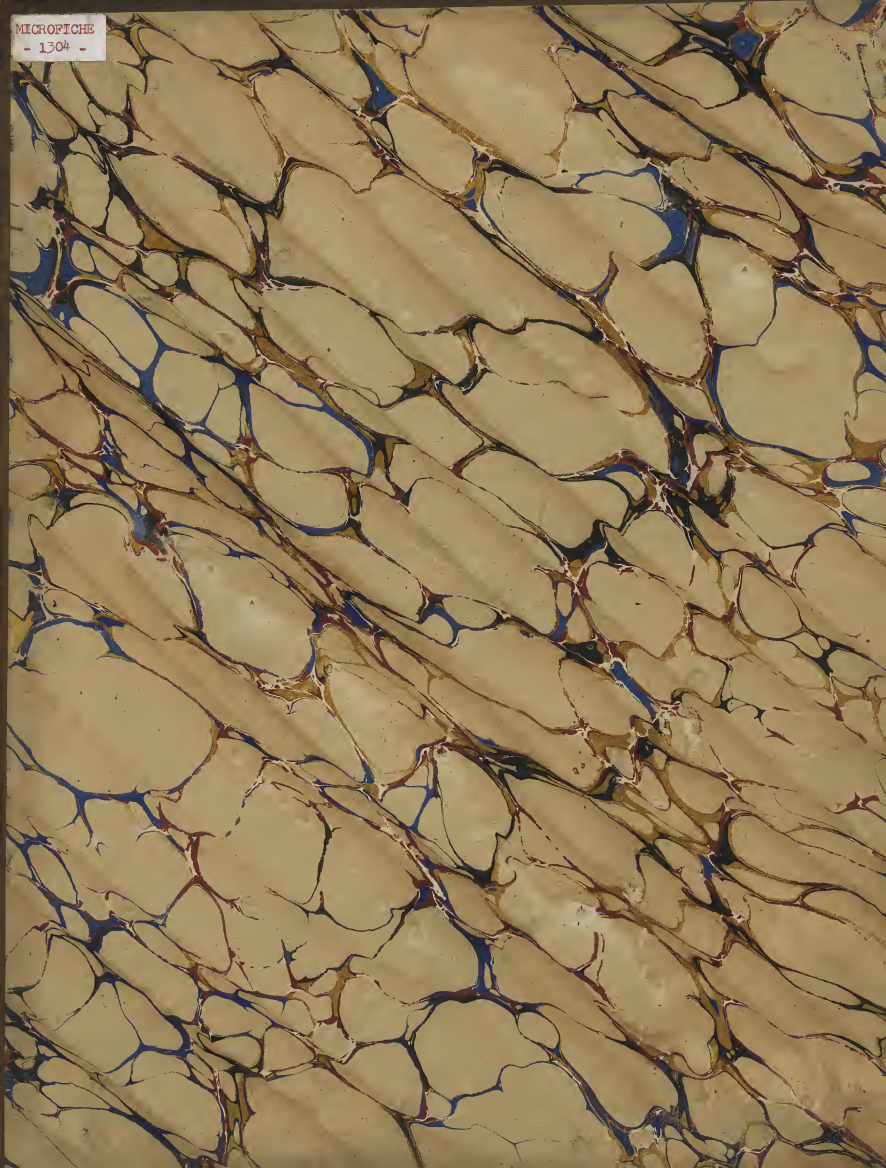
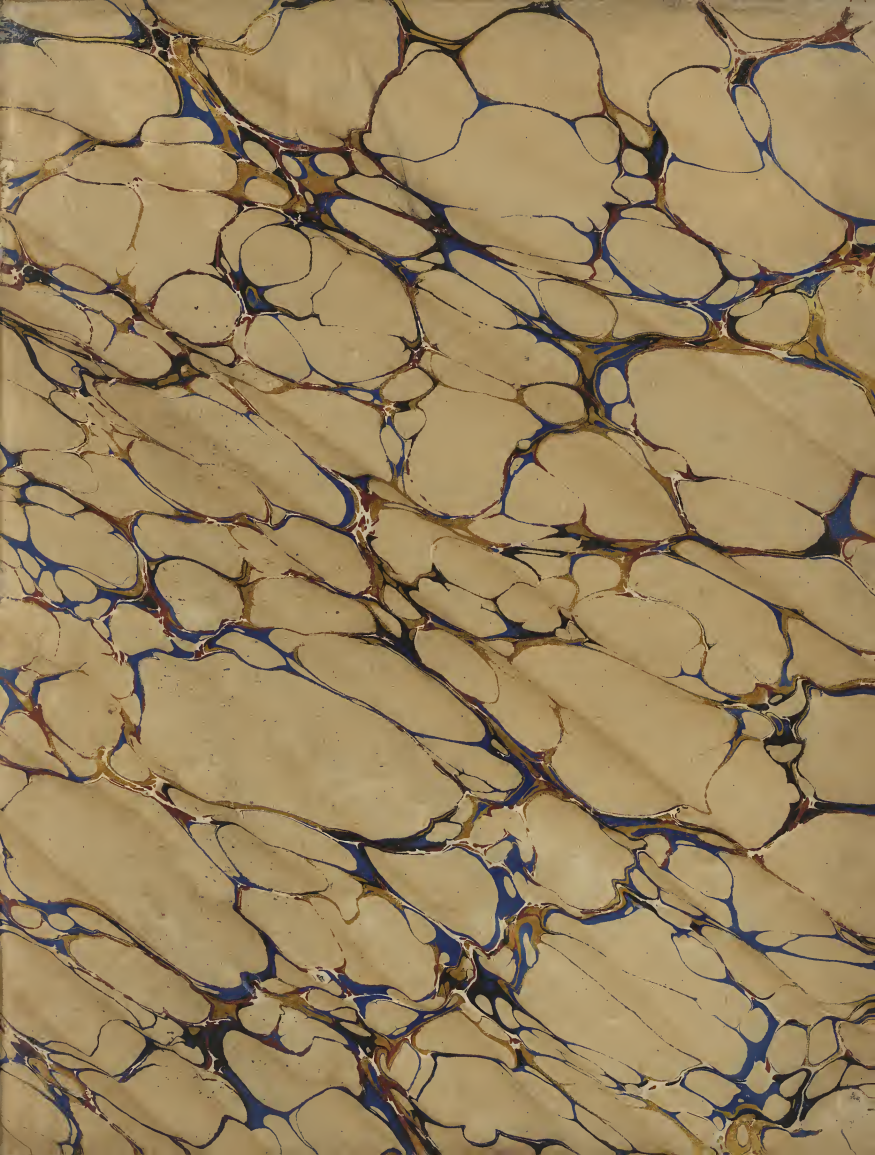


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**REPORTS**  
**OF**  
**MEDICAL CASES.**



REPORTS  
OF  
MEDICAL CASES,  
SELECTED  
WITH A VIEW OF ILLUSTRATING  
THE SYMPTOMS AND CURE OF DISEASES  
BY A REFERENCE TO  
MORBID ANATOMY.



By RICHARD BRIGHT, M.D. F.R.S. &c.

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AND ONE OF THE PHYSICIANS TO

GUY'S HOSPITAL.

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VOLUME II.  
DISEASES OF THE BRAIN AND NERVOUS SYSTEM;

PART I.

INCLUDING

INFLAMMATION OF THE BRAIN AND ITS MEMBRANES;—ACUTE HYDROCEPHALUS;  
DELIRIUM TREMENS;—APOPLEXY;—PARAPLEGIA;—CONCUSSION;—  
CHRONIC HYDROCEPHALUS;—SPINA BIFIDA.

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1831.





TO  
JAMES FRANCK, M.D. F.R.S. &c.  
INSPECTOR GENERAL OF HOSPITALS TO THE FORCES,

*THIS VOLUME*

IS DEDICATED,  
WITH SENTIMENTS OF THE MOST HEARTFELT ESTEEM,  
BY HIS FAITHFUL FRIEND,

THE AUTHOR.



## P R E F A C E.

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MORE than three years have now elapsed since the publication of my first volume of "Reports"; and if the kindness with which that work has been received by the Profession has afforded constant encouragement in the progress of the present volume, it furnishes, now that the labour is completed, an additional source of anxiety, lest I should be about to forfeit any part of that good opinion which has been too liberally expressed. I am not however conscious that either my industry or my zeal has abated; and my opportunities have undoubtedly increased, not only by the ordinary circumstances which extend a professional man's sphere of experience, but by the great augmentation which has taken place in the sumptuous Hospital to which I am attached; and in which I am proud to say that my Colleagues, whether medical or surgical, have by their unremitting kindness shown how little jealousy interferes between two professions, which, as they are most properly separated in practice, should ever be united in study, in science, and in spirit.

In the prosecution of these Reports my object has remained unaltered; but I have introduced a modification into the arrangement of the cases, at the suggestion of several friends, and more particularly of Sir ASTLEY COOPER, who has always kindly, and by an excellent example, encouraged me in my undertaking. By him it has been pointed out to me that the interest of a work of this kind would be greatly

increased, if, instead of bringing together dissertations on individual diseases of separate organs, the derangements of one particular organ were selected for illustration. The reader will therefore find that I have almost entirely limited the present volume to cases calculated to illustrate the morbid conditions of the Brain and Nervous System, and that I have attempted to arrange them in such a manner as to present a connected view of the numerous diseases which depend either upon structural or functional derangements of those important parts.

I have divided the cases in this volume into three SECTIONS, under the heads of INFLAMMATION, PRESSURE, and IRRITATION, according to the prevailing morbid condition by which they are characterized. In the FIRST of these divisions I have, indeed, included many in which irritation has borne a very marked share; but it is irritation so mingled with inflammatory action as at least to deserve the name of INFLAMMATORY IRRITATION, and differs widely from the less inflammatory diseases included in the third section. I have likewise adopted PRESSURE as the generic term of the SECOND section, but not without some hesitation; for in many of the cases which it includes, the influence of pressure is by no means capable of demonstration, and it probably does not exist. The term INTERRUPTED CIRCULATION or INTERRUPTED CEREBRAL INFLUENCE, might perhaps have been more satisfactory to some, but would scarcely have been attended with less difficulty or have involved less hypothesis than the term which I have used; and in almost all the cases, where any cause for the symptoms can be traced, some degree of pressure may be inferred. The THIRD section is distinguished by the term IRRITATION, designating certain conditions of the nervous system, which, if they are not the subjects of very definite ideas, bear



a strong analogy to each other in the character of the signs they present, and afford very marked and important features in the affections of the Brain and Nerves. To render the arrangement still more complete, I intended to have introduced one other Section, under the title of INANITION, including those cases which depend upon a defective circulation through the brain, whether produced by large depletion, or by the slow wasting of the body; but to this class of cases I have only made a general reference at the end of the third section.

On the subject of those perverted mental actions which constitute MANIA and INSANITY, and that depression of the powers of the mind which characterizes IMBECILITY,—inquiries at once most interesting and most difficult,—I have not professed to treat specifically. To what a degree the manifestations of mind are influenced by corporal and organic changes, will be frequently seen in the following pages; but the facts thus thinly scattered go a very little way towards elucidating the subject of mental alienation.

I have throughout studied fidelity in the detail of facts; and I have more particularly wished to describe, in each case, the pathological state of all the various organs of the body, rather than to confine myself to the condition of the particular organ under consideration; because I conceive this to be one important means by which the connection and dependence of the different functions are to be traced, on a due appreciation of which alone, can the Physician depend for the rational practice of his art. In studying these relations, it will be seen that, besides the dependence of cerebral disease on morbid conditions of the lungs and of the heart, the liver and the intestines, the KIDNEYS exert an influence scarcely inferior to any other organ, and in a great variety of cases the importance and, I trust, the correctness of the views I advanced in my former volume will be substantiated; and upon this sub-

ject I wish to correct an error, into which some of my professional brethren seem to have fallen, regarding my views of that class of renal diseases which is so often connected with the secretion of albuminous urine. From the observations of some of them, I am led to suppose that they consider me as asserting, that this description of urine exists only when organic disease has already taken place in the kidney. This, however, is by no means the view I have taken of the subject: I believe that functional disease in this, as in most other cases, precedes the structural change; and though I have left this open to the judgement of others, I have expressly said, that "the more probable solution appears "to be, that the altered action of the kidney is the result of the various "hurtful causes influencing it, through the medium of the stomach and "the skin, thus deranging the healthy balance of the circulation, and "producing a decidedly inflammatory state of the kidney itself:—that "when this continues long, the structure of the kidney becomes permanently changed,—either in accordance with, and in furtherance "of, that morbid action, or by a deposit, which is the consequence of "the morbid action, but has no share in that arrangement of the vessels on which the morbid action depends." (Vol. I. page 3.) This passage clearly explains my view of the matter; and I am inclined to believe that the functional derangement of the organ may sometimes precede the structural change for a period of many weeks and many months, and that the kidneys of a patient thus affected, who has been cut off early by some other disease, may afford very little evidence of diseased structure. It is however in reference to the liability of such patients to affections of the head, that their chief connection with my present subject arises. I have stated, in my former volume, that in these cases "the two great sources of casual danger will be found in "inflammatory affections, more particularly of the serous, sometimes

“ of the mucous membranes, and in the effusion of blood or serum into the brain and the consequent occurrence of apoplexy.”——“ With regard to the cerebral affections, coming on in the progress of these diseases, we find, in the cases above related, both apoplexy and epilepsy; and a very well marked instance of the former was witnessed in a case in the Clinical Ward in 1825.” (Vol. I. p. 71.) It is upon this point that the Cases in the present volume most closely approach to those in the former: in all other respects indeed they have little connection with each other.

The extent to which I have carried the present collection of cases, and the time which has consequently elapsed since the first sheets passed through the press, have necessarily led to some difficulty in the arrangement of such cases, applicable to the various subjects under consideration, as have occurred in the intermediate time. The introduction of these has often occasioned delay in the printing, and has at other times undoubtedly interfered with the strict order in which the Cases should have been related; but whenever this has very decidedly occurred, I have attempted, by the arrangement of the TABLE OF CONTENTS, to give every assistance in my power. I trust likewise that the INDEX will, in no small degree, facilitate the employment of a book which must always be considered more applicable for reference than for continuous perusal, and which must still be confessed a very imperfect contribution towards illustrating some of the most interesting and extensive subjects in practical medicine. Should I be fortunate enough to have followed worthily those who have distinguished themselves as labourers in the same field, both in this country and upon the continent, and should this volume be sometimes associated with those of Dr. Abercrombie, Mr. Charles Bell, Mr. Brodie, Dr. Cragie,

Dr. Cheyne, Dr. Monro and Dr. Hooper, in our own country ; and those of Andral, Foville, Lallemand, Magendie, Rostan, Serres, and many others of our continental brethren,—I shall feel in some degree compensated for the pains I have bestowed.

11, Saville Row,  
May, 1831.



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## ERRATA.

(The reader is requested to make these alterations with his pen.)

- Page 45, line 3, *after* Plate insert IX.
- Page 51, line 18, *after* fibres insert (Plate III.).
- Page 123, line 3, *after* Plate insert XXX.
- Page 181, line 14, *for* fissa *read* fissura.
- Page 181, line 19, *for* was *read* had.
- Page 191, line 24, *for* Pacchionie *read* Pacchioni.
- Page 227, line 32, *after* anterior insert "lobe of one."
- Page 261, line 12, *for* scyballæ *read* scyballa.
- Page 292, line 28, *for* three weeks *read* seven weeks.
- Page 308, line 18, *for* Morghani *read* Morgagni.
- Page 332, line 27, *for* loss *read* less.
- Page 333, line 26, *for* their *read* these.
- Page 337, line 36, *for* diseases *read* disease.
- Page 436, line 28, *for* bodies *read* arches.
- Page 515, line 22, *for* disorders *read* disorder.
- Page 516, line 26, *for* Case CCLI. *read* Case CCLI\*.
- Page 691, line 17, *for* ventricles *read* ventricle.





SELECT REPORTS  
OF  
MEDICAL CASES.

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GENERAL OBSERVATIONS ON THE DISEASES OF THE BRAIN AND NERVOUS  
SYSTEM.

**M**ANY of the Diseases of the Brain and Nervous System admit of little satisfactory illustration from anatomical research ; and we are therefore induced to consider them as purely functional, though experience shows us that this view has often been the unintentional cloak for ignorance, and has materially retarded investigation. There are, however, various cerebral affections which appear to be as entirely functional as the diseases of any other organ ; and in no class of maladies are the functional derangements attended by such important symptoms. At the same time, in a system the office and structure of which are so peculiar and so delicate, we may well conceive that trivial organic changes easily escaping observation,—particularly if taking place over a large extent,—might be capable of producing very important derangement and very marked symptoms ; and as observations have multiplied, this obscure branch of pathology is gradually becoming elucidated, by the careful comparison of symptoms with deviations from the natural structure and appearance discovered after death : nor are there any diseases in which not only the acute and practised anatomical eye, but the power of accurate discrimination during life, is more necessary to lead us to just pathological distinctions.

The principal phenomena of cerebral and nervous disease may be ascribed to **INFLAMMATION, INTERRUPTED FUNCTION, and IRRITATION :**

and of interrupted function the causes are numerous; as pressure, concussion, deficient circulation, and a state of torpor in the action of the nerves themselves, which probably in many cases, is the result of causes producing an immediate sedative agency, and bringing on a state of the nervous system which may be considered as the direct converse of irritability. In most of these cases, there is reason to believe that vascular pressure exists either as the cause, or as the immediate effect;—and in the same way it may be said that in a majority of instances, vascular excitement accompanies nervous irritation; so that it is no easy matter, in any derangement of the nervous system, to discriminate the share which belongs to the brain and nerves themselves, from that which belongs to the state of the circulation; these two systems depending so intimately on each other, that every disorder of the one necessarily influences both. As, however, we are unable to explain the action of the nerves on any known principles,—although we see the immediate effects produced by their destruction or their irritation,—we consider them as the foundation of those actions in the body which, when once brought into play, mutually excite and stimulate each other, and mutually participate in each other's derangements; and therefore the functional conditions of the nervous system itself might be made the foundation of our arrangement. But upon the whole I have preferred, in a work the object of which is to illustrate the organic and demonstrable changes in the conditions of parts, to employ an arrangement founded on the more obvious sources of disease; without for a moment losing sight of the functional conditions, which must at last form a large feature in every arrangement. It is therefore my intention to assume INFLAMMATION, PRESSURE, including Concussion, IRRITATION, and INANITION, as the groundwork of the arrangement of the cases in the present volume.

These morbid conditions are generally blended together in such a way as to render it impossible to separate them completely from each other. Inflammation of the brain and its membranes seldom occurs without being marked by great irritation, and the products of inflammation become the immediate sources of irritation, or of important pressure, or interrupted circulation: so likewise in many cases severe irritation, particularly if it arises from causes within the head, actually paves the way for inflammation, as if it were but a subordinate degree of the same condition; and tumours and other obvious sources of irritation, however slowly they may



increase, and however they may be placed, so as under ordinary circumstances to produce but slight symptoms of compression, may often excite inflammation, and will become causes of pressure whenever the least increased flow of blood takes place in the vessels of the head. On the other hand, all the ordinary causes of compression give rise to irritation under certain changes, vascular or nervous, of which some are obvious, but others, such as we have no means of distinctly explaining or appreciating; concussion is frequently combined both with inflammation and with pressure; and inanition leads to congestion, to irritation, and to effusion. In proportion, however, as the one or the other condition can be ascertained to exist, our treatment will require most important modifications; and as our ultimate object in all such researches is to devise the remedies most likely to be beneficial in each form of disease, we cannot perhaps, in a practical point of view, employ an arrangement altogether preferable to that which I have mentioned.

The SYMPTOMS of INFLAMMATION of the brain and its membranes are a general febrile condition, a quick and often a hard pulse, pain in the head, and sometimes in the limbs, sickness, convulsion, injected conjunctiva; sometimes simple confusion of ideas, at other times active delirium, with a quick though frequently faulty perception, sometimes intolerance of light and sound, sometimes a careless or wild contempt of all external objects or all ordinary sources of excitement; and all these symptoms suffer considerable modifications both from the situation and acuteness of the inflammation, and from the stage of its progress and the consequent changes which the parts are undergoing.

The symptoms indicating the state I have designated PRESSURE are loss of voluntary power, from the most momentary, trivial, and partial, to the most fixed, general, and complete paralysis; and so likewise all degrees of depraved and impaired sensation, dullness of intellect, failure of memory, oppressed circulation, coma, sopor, apoplexy: but these symptoms of interrupted function probably arise likewise from other causes besides actual pressure, which it is not easy to appreciate.

The symptoms of CONCUSSION are loss of consciousness, sickness, headache; pulse irritable, often quick and irregular, or easily excited; pupils unequally dilated and contracted; and sometimes convulsion and delirium, or idiotcy.

The symptoms more particularly marking IRRITATION in the brain

are restlessness, discontent, screaming, agitation of manner, convulsion, and a pulse generally frequent, but variable both in frequency and strength.

The general symptoms of *INANITION* are a pallid countenance, flaccid skin, and weak circulation, as marked by a feeble pulse with or without sharpness in the beat. The symptoms more immediately affecting the head and nervous system are, dull pain, sense of noise, indistinct vision, despondency of mind, irritability, wandering delirium, epileptic syncope, and coma.

I. *INFLAMMATION* of the Brain and its Membranes may be idiopathic, or the result of the febrile action excited in the system, as in fevers, whether continued, remittent, intermittent, or exanthematous, and in some inflammatory affections of other parts, as of the different viscera of the abdomen; or it may arise from the extension of inflammation, as in *Erysipelas*, and in cases where inflammation has been set up within the cavity of the ear, and in cases of diseased scalp or cranium; or it may depend on some other diseased action going on in the system, and thus be considered *Metastatic*, as in *Gout* or *Rheumatism*; or, again, it may be excited by external Injury from violence.

The appearances which result where the membranes chiefly suffer, and death takes place early, are undue vascularity in various degrees, unusual dryness of the membranes, and rather a deficiency of fluid in the ventricles, effusion of serum, often assuming a gelatinous appearance from being held in the fine tissue of the pia mater, unnatural adhesions between the membranes, and between these and the brain, the deposit of fibrin forming adventitious membranes, and the formation of pus, more particularly where the membranes have suffered from external violence. Inflammation of the substance of the brain may present increased vascularity pervading the whole or a part, and unusual adhesions between the brain and its membranes, or may go on to suppuration and the formation of ulcer or of abscess, and occasionally destroys the consistency of the brain without actual suppuration. But inflammation both of the brain and of its membranes will frequently destroy life by sudden exhaustion, leaving very doubtful proofs of the inflammatory nature of the disease.

II. *PRESSURE* of the Brain may depend, and that even in its most urgent and sometimes fatal forms, simply on the state of the circulation within the head, as in cases of venous congestion giving rise to headache, vertigo, lethargy, and even apoplexy. Disordered circulation may depend

upon the quantity and the mode of distribution of the blood ; which are the only derangements that can immediately produce pressure, and this deranged circulation may arise from local causes or from some more general cause, as disease in the heart or the lungs : but the circulation may also be disordered in another way by the morbid condition of the circulating fluid ; — thus in cases of jaundice, diabetes, anasarca with renal affection, and ischuria renalis, and bronchitis, and in asphyxia, there is some reason to believe that, independently of the pressure which the brain suffers by the retarded circulation, the quality of the blood acting not alone on the brain, but on the nerves of the whole body, adds to its injurious effects ; and it is possible that the peculiar loss of power consequent upon the external, as well as the internal use of lead, may depend on a condition of the brain in which congestion is combined with a diminution of nervous energy from the immediate sedative action of the lead.

2. The rupture of vessels in the brain or spinal cord, and consequent effusion of blood, as in cases where single large vessels are ruptured, sometimes in consequence of disease, as aneurisms or ulceration ; sometimes from accident ; and in cases where several small vessels are ruptured, throwing out blood separately, and either coalescing into one clot, or forming many small lodgements of blood.

3. Effusion of serum without obvious inflammation, as in those cases of fatal apoplexy where no other visible evidence of disease remains, but serum effused either into the ventricles or under the membranes of the brain : so likewise in chronic hydrocephalus, and in cases of great debility, as phthisis, or other diseases where the free transmission of blood through the lungs is prevented, as in cases of death from hanging or from exposure to intense cold. Serum is occasionally found in considerable quantity under the arachnoid, when slight drowsiness and wandering of intellect have been the only symptoms during life.

4. The various results of common inflammation, as effusion of serum or pus, or the thickening of membranes, or the softening of portions of the brain, which acts by allowing pressure to be made by one part falling unsupported on another, or possibly only produces symptoms of pressure by interrupting the nervous communication.

5. The results of peculiar diseased actions ; as scrofula, carcinoma, fungous disease, melanosis, and osseous deposits, either in the cranium, on the membranes, or in the substance of the brain : to which may be added cer-

tain organic changes, producing partial or general induration, without being referable to any specific action. But in all these the symptoms of pressure are usually combined with those of irritation.

III. With regard to *CONCUSSION*, the causes producing it appear so decidedly mechanical, that there is much reason to believe the symptoms depend upon the mechanical derangement. Frequently this is so slight, that the vessels of the brain being previously healthy, a few hours or days repair the injury; in other cases it is not so, and the lacerated fibres and vessels mark the injury after death. Perhaps the ultimate morbid condition on which the symptoms of concussion depend, arises from interruption to the circulation and to the natural communication between the fibres and particles composing the nervous tissue.

IV. *IRRITATION* of the Brain or its membranes may arise from disease within the cranium or from disease in distant parts; and although the irritating cause may frequently be the subject of anatomical demonstration, and the results of continued irritation may sometimes be shown, yet the existence of this condition must chiefly if not altogether be traced in the symptoms which it produces.

FIRST. In some instances the irritation arises from causes within the cranium; as,

1. The paroxysm in certain forms of mania, where the irritation appears to be connected with a peculiar and inexplicable irritability of the nervous structure itself; frequently, however, depending for the temporary increase of the habitually morbid state upon increased circulation, and in such cases giving evidence of the fact by the appearance of vascularity after death.

2. Other kinds of fixed mania depending on the derangement of the mental functions from original or acquired conditions of the brain, respecting which we are quite ignorant, but which are occasionally connected with appreciable organic changes.

3. Paroxysms of Epilepsy, Chorea, or Neuralgia, dependent on disorganization acting independently of pressure, and without producing the symptoms of that condition. As in cases where the disorganization has been slow, the brain having gradually acquired unusual hardness or softness, or become the seat of some tumour or morbid growth; each paroxysm in these cases generally depending on some change in the state of circulation, and sometimes on distant irritation, when the mischief within the brain may be considered as little more than a predisposing cause.

4. Headaches, and various nervous feelings connected with a diseased condition of the vessels of the brain, as in some of the premonitory symptoms of apoplexy.

SECONDLY. Irritation of the brain may depend upon remote morbid agencies, or diseases going on in some distant part; as,

1. The delirium in certain states and periods of fever from irritation of the abdominal viscera; and it is not quite obvious whether the delirium attendant on some acute cases of inflammatory disease, as peritonitis, should be classed with these or with the truly inflammatory affections; it probably commences in simple irritation, but inflammation is afterwards set up; and the same may be said of those cases of delirium, arising when the functions of the liver have been greatly deranged.

2. Epilepsy and convulsion coming on at the commencement of eruptive and other fevers, or in cases of suppressed gout.

3. Epilepsy and convulsion from worms or other irritation in the alimentary canal, or from teething.

4. Hysteria from uterine sympathy.

5. Chorea from uterine or other irritation.

6. The peculiar tremulous and spasmodic action produced by inhaling the fumes of mercury.

7. Tetanus and hydrophobia, possibly from the irritation of the nerves of the injured part.

8. The effects of certain poisons, such as Strychnia, which according to the late ingenious experiments of Dr. Addison and Mr. Morgan, appear to act through the medium of the nervous system.

9. To this division may likewise be referred those varied affections of the head, as well as those mental aberrations which depend on the state of the stomach, sometimes showing themselves in confirmed hypochondriasis.

V. INANITION OF DEFICIENT CIRCULATION is a very powerful cause of many derangements in which the brain and nervous system bear a prominent part: it shows itself in that general want of power which depends on an insufficient supply of nourishing and stimulating blood to the brain. It may arise from excessive depletion; in which case it may be but a temporary effect, having amongst its symptoms, intense headache, a sense of singing in the ears, deafness, confused vision, or total blindness, syncope, and convulsion. If depletion have been carried further, or very frequently

repeated, the effects may be more permanent, marked by paleness of countenance, by unusual effort of the heart, throbbing at the temples, headache, confirmed lassitude, despondency, and all this occasionally terminating in convulsion or coma. The same state may arise from insufficient nourishment, or from a deficiency in the supply of wholesome air or exercise. It may also arise from internal causes weakening the power of generating blood, and giving birth to all the symptoms connected with chlorosis and anæmia.

Examination after death proves the remarkable deficiency of red particles which has existed in the blood during life; and the effused serous fluid which is discovered both in the ventricles and under the arachnoid, often affords a satisfactory explanation of the symptoms of pressure which have immediately preceded death.

## SECTION I.

### INFLAMMATION.

THE present section will be found to embrace a considerable variety of cases, including,—FIRST, Inflammatory affections of the membranes ;—Arachnitis, with the effusion of puriform lymph, or with close adhesion of the membranes to the brain ;—Arachnitis, with serous effusion, including acute hydrocephalus ;—Arachnitis, with great irritability, as in delirium tremens ;—such cases of inflammatory irritation of the brain and its membranes as depend on other general or distant sources of excitement ; and inflammation commencing in the diseases of the neighbouring parts. This section includes, SECONDLY, Inflammation of the substance of the brain ;—superficial ulceration ;—encysted abscesses ; and diffused suppuration ;—to which are added, cases of SOFTENING of the brain, as being closely allied to these diseases, and forming a connecting link between them and the Cases contained in the subsequent sections.



## CASES

### ILLUSTRATIVE OF THE EFFECTS PRODUCED ON THE MEMBRANES OF THE BRAIN BY INFLAMMATION.

AMONGST the cases introduced in the present section, there are some which I have designated as "Arachnitis, with excessive irritability," but at the same time doubts may well arise as to the propriety of considering them of a truly inflammatory nature. They are instances of that disease which is known under the name of Delirium tremens; and although the symptoms resemble, in most respects, those of high membranous excitement, yet the causes which produce, and the remedies which remove them, are little in accordance with the idea that they depend upon genuine inflammatory action. We know, however, that inflammation in other parts varies greatly, both as to the causes by which it is excited, and the treatment it requires. We know that inflammation in scrofulous subjects will often allow of little depletion; that the inflammation of gout will frequently require that the system should be supported; and that the inflammation of rheumatism will remain stationary or increase under bleeding, when it will yield completely to bark; and taking into view the enervated condition of those individuals in whom delirium tremens is usually found, we may, without any great inconsistency, admit that an inflammatory state exists, modified by the peculiarity of the constitution and the delicacy of the organs on which it acts; but we must not be led away, by the name of inflammation, to the application of remedies which would seldom fail to be injurious.

In regard to Hydrocephalus likewise, though there is no doubt that inflammation marks its early stages, and requires to be met by the most prompt and decisive measures, yet many of the symptoms which attend the approach and which arise during the progress and in the advanced periods of the disease, depend more upon other and very contrary states of the circulation; and congestion, irritation and inanition often form more important features in different stages of the disease than inflammation. It is therefore necessary, in every individual case, to distinguish as far as possible what part of the symptoms depends on each of these conditions, and I am persuaded that in a



great many instances, which others will recall to their minds, and in which the unsuccessful issue of large depletion has been too apparent, sufficient circumstances, both in the symptoms and in the appearances after death will be remembered, to throw a doubt on the propriety of having considered the disease as depending upon active inflammation.

### CASE I.

*Arachnitis followed by a deposit of Pus on the right Hemisphere and in the Ventricles.*

A stout Sailor was admitted, May 30th, into Guy's Hospital. The disease under which he laboured had been previously supposed to be intermittent fever with hepatitis. After he had been a very short time in the hospital, it was evident that his chest was greatly affected, particularly on the right side; his febrile symptoms increased, and in two days after his admission he became delirious; which condition having lasted with considerable excitement for about forty-eight hours, he fell into a state of coma, lying on his back, and breathing with an effort, but without stertor; the saliva flowing from his mouth. In this state he remained for twenty-four hours, with occasional convulsion, when he died.

### SECTIO CADAVERIS.

On removing the calvaria and raising the dura mater, pus was observed spread beneath the arachnoid of the right hemisphere; and on laying open the ventricles they were found to contain rather more serum than natural, which was slightly turbid, and a small quantity of puriform fluid had subsided to the bottom of each posterior cornu.

The right cavity of the chest was full of pus of a very unhealthy character, the lung on that side contracted and condensed. The liver was perfectly healthy.

In this case inflammation of the arachnoid had no doubt come on subsequently to the severe disease within the right cavity of the chest; and as no reference whatever was made by the friends of the patient to any blow or injury on the head, we have every reason to believe that it arose spontaneously; and attacking a subject already worn down by extensive disorganization in the chest, remedies were not easily brought to act, and the effects of pressure became very manifest before death.

One incidental circumstance worthy of remark in this case, was the error into which those who had previously seen the patient had fallen, in regarding the inflammation within the chest as hepatitis. When the lower part of

the right lung is the seat of disease, this error has frequently occurred: I have myself witnessed it in three instances. In such cases there can be no doubt that the stethoscope would greatly assist the diagnosis; but even without the aid of this instrument there are generally sufficient diagnostic means by which to form an accurate conclusion, more particularly the careful application of pressure to ascertain the exact position of the tenderness, whether above or below the diaphragm: by observing the state of the tongue we may also gain much information, as it is generally peculiar where the liver is affected, having a brown stripe on each side of the middle division, a whiter portion on each side of that, and a red margin at the tip and edges; the colour of the complexion is frequently marked by a slight yellow tint, the urine more than usually tinged with bile, and the bowels disordered;—all these marks of hepatic inflammation are not usually present when the lungs and their investing membrane are alone the seats of disease.

## CASE II.

*Arachnitis followed by a deposit of Pus in the Ventricles, and of Lymph at the Basis of the Brain.*

[The following case I shall give in the words of Mr. Streeter, who has favoured me with it, and in whose practice it occurred.]

“ — HUGHES, aged about 24, light complexion, carroty hair, and freckled skin.

“ 1828, Sept. 24, 10 P.M.—On entering the room I found a young man senseless, snoring loudly; he had been lying in bed, with his head considerably raised by pillows, but now it was dropping on his breast. The pulse sharp, jerking strongly, and very frequent; the surface of the body very hot; the eye-balls fixed and drawn upward. All that I could learn at the moment from the persons around was, that he had been complaining for some days, but of what they knew not, as his manner was very reserved; they believed he had been living rather hardly for some time past, as his circumstances were but indifferent; he had complained of his head, and had kept his bed the whole of the day; they had carried him up a cup of tea in the afternoon, but had not since seen him till just before I came, when they found him in the state I have described.

“ Two cupping-glasses applied on the nape of the neck lessened the force and frequency of the pulse, and removed the fixed state of the eye-ball, the stupor, and the heat of skin; a third was placed on the fore-part of the chest, but produced no further relief. About fourteen ounces of blood were taken away altogether. Two blisters

were applied, one on the nape of the neck, the other on the fore-part of the chest. Hydrarg. Submur. gr. ij. every two hours, till three doses should be taken.

"25th. This morning the blisters have risen well; his appearance is on the whole better, though he has not spoken, nor have his bowels been affected. I ordered three grains of calomel and three grains of jalap every hour, till the bowels were opened. Of this he took three doses, and a cathartic draught. A small blister was applied on the inside of each thigh.

"These medicines, with an enema in the middle of the day, produced a free evacuation. By the afternoon his speech and sensibility had returned; he complained of uneasy sensation about the head, scarcely amounting to pain; stated that he had been unwell for some time, that he had occasionally suffered severe pain in his head, and had been getting deaf for nearly two months; and, on questioning him, he was found to have lost the recollection of two days. His mother and sisters stated they had noticed a strangeness and peevishness in his manner for some time past. I ordered some leeches to be applied to his temples.

"26th. Appears going on well, but there is rather a disposition to constipation, and a quickness of manner, with considerable anxiety about getting better. There is a peculiarity in his speech, as if the tongue was proportionally larger than the mouth; but this is stated to be his natural manner.—Hydrarg. Submur. gr. j. Pulv. Jalapæ gr. ij. every six hours, with a fourth part of the following mixture,—Magnes. Sulph. ʒss. Liq. Ammon. Acet. ʒiv. Mist. Camphor. et Aq. Anethi āā ʒijʒs M.

"27th. Much the same.—To continue the mixture and powders, and take an opening powder and a senna draught.

"28th. Continued the mixture and powders.

"29th. During yesterday a gradual increase of feverish symptoms, with quickness of manner, and uneasiness about the head took place, which continued this morning.

Habeat Hydrarg. Submuriatis et Pulv. Ipecac. āā gr. fs. Pulv. Antim. gr. j.

Potassæ Nitrat. gr. ij. quarta quaque hora, cum haust. insequent.

Tinct. Card. Comp. ʒj. Sp. Æth. Nitr. ʒxxv. Mist. Camphoræ et Aq. Cinnamonomi āā ʒfs.

"P.M. Pain of head increasing; coma and insensibility approaching; he gives signs of great uneasiness when his head is moved on the pillow; the pupil insensible to light; talks in a very rambling and wild manner when roused.

Applicentur Hirudines vj temporibus.

Continuantur mistura et pulveres.

"30th. Coma and insensibility complete. Constantly talking.

Applicentur Hirudines vj temporibus.

Pulv. Scammonæ et Hydr. Submur. āā gr. v.

"In the evening blisters were placed behind his ears, and he was ordered to take a powder composed of calomel and ipecacuanha.—He died on the following morning.

## SECTIO CADAVERIS.

“Dissection showed that a collection of fluid to the extent of between three and four ounces had taken place in the ventricles: this fluid was of a purulent character, but considerably more watery than pus usually is. There was absorption of part of the medullary substance of the hemispheres contiguous to the ventricles, and the parietes were very easily torn. There was extensive deposit of yellowish-green adhesive lymph on the membranes covering the basis of the cerebrum about the sella turcica and pons varolii, but not enveloping the auditory nerve, or extending to the meatus internus so as to account for the pre-existing deafness.”

In this case the first symptoms of head affection were of that slow and insidious character which is very frequently observed, the disease first showing itself in a change of the natural manner, an unusual peevishness of temper, gradually increasing deafness, and occasional pain in the head: and to these symptoms followed a sudden attack in which there were signs of pressure within the brain, but mixed with those of much irritation: the remedies first employed gave great relief, but the insidious disease continued, terminating with all the well-marked symptoms of compression from effusion, the result of inflammation.

## CASE III.

*Arachnitis terminating in Serous Effusion into the Ventricles and under the Arachnoid.*

— was admitted into Guy's Hospital, July 1828, under the care of the Surgeon, affected with rheumatic pains, accompanied by some eruption, considered to depend upon a previous syphilitic disease for which he had been in the Hospital a few weeks before. He was put upon the use of colchicum in small doses with some apparent relief, but on the 15th of August began to complain of a severe headache and sickness; which continuing and increasing, I was requested to see him on the 18th. He was then quite insensible, lying on his right side, with his knees drawn up close to his body. Pupils much dilated, and scarcely acting when a candle was brought to them: his hands, arms, and legs, were in a state of constant involuntary motion: occasionally he raised himself in his bed, and turned quite round in a half-kneeling posture, uttering from time to time a kind of suppressed moan. Pulse quick and feeble: the only evidence he gave of possessing sensibility was, that when he struck his head, as he did once or twice, accidentally against the wall, while turning about in his bed, he uttered a slight expression of pain. The bowels not sufficiently open.

I ordered a powder of jalap and calomel immediately; a grain of calomel to be given every second hour; the head to be kept cool; and a large blister to the nape of the neck.

August 19. I found him lying in a state of complete insensibility, with the aspect of a person in fever. He had not spoken intelligibly since I had seen him the day before; he was more quiet, however: his lips and teeth were covered with sordes: his bowels open by injections: pupils contracted.—He died in the evening without any particular change having taken place in his symptoms.

#### SECTIO CADAVERIS.

A considerable quantity of serum was effused under the arachnoid on the surface of the hemispheres, and a great deal lay in the basis of the skull when the brain was removed; five or six drams of colourless fluid distended the ventricles.

The liver presented a curious specimen of small miliary tubercles thickly disseminated on the surface, and still more completely occupying the internal substance of the organ, formed into clusters, and so numerous that the whole liver seemed degenerating into a yellow mass; and by pressure in some parts a little dark fluid, more like blood than bile, was made to issue from the centre of the clusters of miliary bodies. A few tubercles were found in the upper lobes of the lungs, and no other morbid appearances.

#### CASE IV.

##### *Arachnitis, with excessive Irritability in an intemperate Man.*

THOMAS SURMAN, aged 35, was admitted into Guy's Hospital, November 27th, 1827. During the last ten years he has worked at a distillery, and has drunk freely both of porter and spirits. He has always had good health, with the exception of a general tremor in the morning after he has been intoxicated. Five days ago he received a blow on the upper part of the neck, which occasioned only a feeling of stiffness; and as he felt ill on the next day, he took aperient medicine, and rubbed a liniment on his neck. After this time he had only a slight headache, and appeared to be doing very well till the day before his admission, when, without further obvious cause, about 3 o'clock, he became delirious, talking incoherently, but was not violent. At 7 o'clock P.M. he was bled in the recumbent posture to a pint and a half, when he became faint: six leeches were applied to his temples; a blister to the nape of his neck; and vinegar as a lotion to his head: since this he has been more quiet, though delirious. At the time of admission there was a general tremor; a hurried manner, con-

stant motion of the eyes: he fancied he saw objects before him, and occasionally picked the bed-clothes: his answers, though quick, appeared rational: a slight flush on the cheeks: no headache. Pulse 98, rather sharp, but very compressible. Skin hot and perspirable. Bowels open the day before.

Habeat Hydrarg. Submur. gr. v. statim,  
et Olei Ricini ℥ss. post horas quatuor;  
Applicetur Embrocatio communis capiti raso.

He became so violent in the afternoon as to require restraint: his bowels were moderately open: and about 9 o'clock, having immediately before been singing, he fell suddenly into a state of collapse; and although stimulants were as freely administered as was possible, he died in a quarter of an hour.

When moving the body on the following morning a considerable flow of blood from the mouth was observed.

#### SECTIO CADAVERIS.

This was performed fifteen hours after death. The sinuses of the dura mater contained much fluid blood. There was a small quantity of serum underneath the arachnoid. The veins of the pia mater were large, as if habitually distended: but the flow of blood which had taken place from the longitudinal sinus on first removing the calvaria, had apparently emptied them. The pia mater peeled off naturally and exposed healthy convolutions: it was a matter of doubt whether the bloody points in the substance of the brain could be considered more than perfectly natural. About two drams of fluid in the ventricles, and nearly an ounce about the basis of the brain.

The lower and posterior part of both lungs, especially of the left, presented an appearance as if blood had found its way into the cells, being of a dark red colour, and in some parts having a greenish tinge, and even a putrid odour, which could scarcely be ascribed to decomposition in so short a time after death; some old adhesions on the right side. The heart was very flabby, and there was an ecchymosis on the left ventricle, just below the semilunar valves of the aorta.

The liver large, of a drab colour, interspersed with yellow mottling. Ducts of gall-bladder pervious, and bile good. Spleen healthy, but adherent to the diaphragm.

Kidneys, particularly the left, pale and flabby. Intestines generally distended; and an arborescent vascularity on the mucous membrane of the stomach.

This case may fairly be considered as belonging to that very peculiar class of cerebral affections in which inflammation is so modified by the acquired irritability of the constitution as to lose many of its characters, and sometimes to call for a treatment diametrically opposed to that which is successfully adopted in more decided forms of pure inflammation. The local injury which was sustained five days before death appears to have been but slight; and, accustomed as the man had been to excessive stimulus, it is not unlikely that the regimen he had undergone led immediately to the derangement which supervened upon the fourth day. The large depletion which was immediately had recourse to, combined with blisters and cold applications, had a temporary effect in quieting the system, but made no material change in the disease: and at the time of his admission, the irritable state in which he was found; the tendency to perspiration; the absence of headache, and the compressible pulse; all seemed distinctly to point out the necessity of caution in any further depletion. It was intended to administer opiates as soon as the bowels were satisfactorily opened, but the sudden collapse gave no time for further remedies; and I feel by no means satisfied that the restraint which in the wards of an Hospital sometimes becomes necessary, and sometimes in private can scarcely be dispensed with safely, was not in some degree instrumental in exhausting his powers.

#### CASE V.

##### *Arachnitis in an intemperate Man, with excessive Irritability.*

A. B., aged 43, a butcher, naturally of an obliging disposition, but impatient of contradiction. He was a very stout and broad-built man, plentifully supplied with fat. For the last twelve or thirteen years he had been remarkably addicted to excessive drinking; commencing his libations of purl at an early hour in the morning, becoming repeatedly inebriated during the day, and being totally unable from tremor and debility to attend to his business, except when under the influence of ardent spirit. His stomach, as a natural consequence, became disturbed, exciting frequent vomiting. During the last three weeks he took little or no solid food. On the 17th, he found great difficulty in swallowing a cup of coffee, from the tremulous state of his hands, and from sore throat; this was quickly followed by cerebral excitement, with delirium, and strong muscular exertion, requiring powerful restraint. The difficulty of swallowing was at times so considerable, as to excite in the mind of one of his medical attendants the idea that the patient was labouring under hydrophobia; and the sus-



picion received a little support from the discovery of the fact, that some weeks before he had received a slight scratch from the tooth of a puppy with which he was playing. Mr. Callaway and Mr. Iliff were requested to see him, and recognised the symptoms of delirium tremens. He was ordered to be cupped at the back of the neck; and, as he was manifestly labouring under irritation of the fauces, leeches were applied to the throat. These measures afforded decided but temporary mitigation of the symptoms. He was likewise ordered opium and the compound sulphuric æther; and as there was much pain referred to the situation of the diaphragm, a Belladonna plaster was applied to the epigastrium. A considerable exacerbation came on, and he expired on the morning of the 19th.

#### SECTIO CADAVERIS.

Externally the body presented no remarkable appearance. The face was rather pale than otherwise, and the abdomen was somewhat tympanitic. The dura mater was very firmly adherent to the calvaria, especially along the course of the longitudinal sinus. There were several small cauliflower-shaped ossific patches on the dura mater, and especially on the falx; and a considerable quantity of serous effusion beneath the arachnoid. The veins of the pia mater were turgid. The cerebral matter was generally pale, and the incised surface exhibited but few bloody points. Notwithstanding the general paleness of the brain, the three layers composing the cortical part were in many places very evident; the external translucent and somewhat grey; the middle thin, whitish, and opaque; the third, or that in contact with the medullary part, broader, and of an extremely pale venous colour. The fibrous structure of the medullary part was not easily separated. The ventricles contained but little serum; the plexus choroides was rather pale, and presented numerous small vascular cysts, with a little white matter.

The mucous membrane of the larynx and trachea appeared soft and thickened, and exhibited, especially in the latter situation, a considerable degree of vascularity. A similar state extended into the bronchial tubes. A considerable portion of the upper, middle, and posterior part of the right lung exhibited the effects of acute inflammation; its structure was distended, free from air, apparently solid, but on pressure a more or less discoloured and sanguinolent puriform mucus escaped from every part of the incised surface: this indurated portion was generally of a very dull dusky-red colour, but it was mottled by the intermixture of other parts, in which the structure was of a dirty-white colour. It was from these latter



parts that the most puriform mucus could be expressed. When thin slices of the lung, taken from the inflamed part, were carefully washed in water, they more or less completely recovered their spongy character; the red portions the least readily and decidedly. The surface of the lung at the inflamed part was smooth, and covered with a thin and tender opaque layer of recent coagulable lymph, unaccompanied by serous effusion, from which both sides were nearly or quite free. The remaining portions of lung were tolerably healthy, but slightly emphysematous from dilatation of the air-cells. The patient, it might be remarked, had been habitually rather short-breathed. The heart was large, thick and fat, but flabby. There was no valvular disease. In the abdomen there was a good deal of fat: no peritoneal inflammation or effusion. The mucous membrane of the stomach was granular, and at the cardia minutely injected, but elsewhere it was pale. The mucous membrane of the remaining part of the alimentary canal appeared healthy. The liver was large, pale, and of a yellowish colour. It was possibly in an early stage of the fatty degeneration. The spleen was small, and very readily broken down into a soft grumous mass. The kidneys were large, and did not appear perfectly healthy, but the traces of the mottling deposit were equivocal. The body exhaled a very peculiar odour, not easily described; perhaps it might be said to be between the vinous and alliaceous.

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For the particulars of this case I am indebted to Mr. Callaway and Dr. Hodgkin; and I have given the dissection in the words of the latter. It is a well-marked case of arachnitis, modified by the irritability which the constitution acquires from the habit of intemperance. The appearances within the brain were highly characteristic of those usually presented in fatal cases; and the granulated condition of the mucous membrane of the stomach, and the state of the liver and of the kidneys, show some of the steps by which intemperance had paved the way for the fatal result. It is a question, to which I may hereafter again refer, how far the bony deposits which take place upon the membranes of the brain, as on the dura mater in this case, may act as sources of irritation to the brain.

## CASE VI.

*Arachnitiſ in an intemperate Man, with excessive Irritability.*

In the following case, my friend Dr. Benjamin Babington has afforded a graphical description of the condition of the mind characterizing this singular affection; and I shall relate it in his own words, as he kindly communicated it to me.

"Mr. S——, a stout publican of rather short stature, and about fifty years of age, had been long addicted to spirit-drinking, and he had more especially indulged in this practice for the last year and a half, in consequence of anxiety about his business, which was complicated and unsuccessful. His wife had observed for some weeks that he was depressed in spirits; but on Saturday morning, the 20th of December 1828, he was so much out of health that he sent for his medical attendant: he then complained of stupor, giddiness, and pain in the head. Mr. — bled him to twelve ounces, and gave him some aperient medicine; but finding him no better in the evening, he bled him a second time to ten ounces, which seemed for the moment to afford relief. On Sunday morning he bled him a third time, and at the moment thought the measure, as before, beneficial; during the day, however, he became delirious, and this delirium increased upon him by degrees, so as to induce Mr. — on Monday morning to apply some leeches to the forehead. The symptoms, far from abating, however, continued with equal if not increased violence during Tuesday, and at midnight of that day I was called to make my first visit. I found the patient in bed, in which he was with difficulty retained by several male friends who surrounded the bed-sides. He was in a state of extreme agitation, perspiring at every pore, endeavouring to get up by force, and labouring under the delusion that thieves were entering his chamber by a number of doors behind his bed, and taking away his property. He was indignant at coercion, which he resisted by powerful struggling, but was far from unmanageable by gentler means. He received me with courtesy, answered such questions as I put to him, and showed me his tongue when required. His great anxiety, beyond that of being freed from restraint, seemed to respect his business, which he much wished to superintend himself; as if he thought that all would go wrong without his presence. His hands were tremulous; his pulse tumultuous, and therefore countless; his tongue white, but moist; his bowels open.

"From the previous history of the case, I regarded this as a well-marked instance of delirium tremens, aggravated, in my opinion, by repeated venæsection. I therefore prescribed two grains of opium in the Pil. Saponis c. Opio, to be taken immediately, and to be repeated every six hours.

"On the following morning I called at 11 o'clock, and to my surprise found Mr. — up, and attending to his business in the tap. His friends seemed to have left him to follow his own inclinations in this respect, though he was evidently as delirious as ever, and had had no sleep, notwithstanding the four grains of opium which he had taken. Amidst his hurry and confusion he seemed to recognise me; and promised to go to bed immediately, if I would write an order to that effect, which was to be placed at the head of his bed. He informed me, that he had made four journeys since I had seen him, but that he could not get rid of a number of people who were plaguing him by breaking into the house. These and other extravagancies he detailed amid a general nervous anxiety to be stirring in his business, a coherency in his replies to medical questions, and a tractability under mild expostulation, which seemed to me to distinguish this case from one of mania. He was directed to continue the use of opium to the extent of two grains three times a day, combined with two grains of calomel to each dose. A saline draught, with twenty drops of tincture of digitalis, was also to be taken every four hours. He was persuaded to go to bed; his room was darkened, and his wife was directed to keep him as quiet as possible, but to dispense with the assistance of male friends, and remove all appearance of restraint.

"I met Mr. — again in the evening. Our patient had remained in bed, and though he had obtained no sleep, was certainly in a calmer state than in the morning. His pulse too, instead of being hurried and countless, was 120, and full. I now ordered two grains of powdered opium to be taken immediately, and the calomel was omitted; the bowels having been acted on twice during the day.

"On the following day (Thursday morning) I learned that Mr. S—— had obtained three hours sleep during the night, and he was calmer than I had yet seen him. Still, however, he was labouring under delusion, and his ideas were morbidly running on his business, and on the necessity of going down stairs to attend to it. Determining to persevere in the narcotic plan, I directed that forty drops of laudanum should be administered in a saline draught, and be repeated every three hours, till further sleep should supervene; and as there had been no alvine evacuation since the preceding day, fifteen grains of colocynth extract with soap were also ordered. On visiting him in the evening, I found that he had fallen asleep soon after we left him in the morning, and had continued sleeping for several hours, so that the opiate draughts were not exhibited. He was now no longer under delusion, and was calm, free from pain, and decidedly better in every respect. His principal complaint, indeed, was of the roughness with which his friends had treated him; and of this he showed evident signs in several bruises about his person. His pulse had sunk to 100, and the aperient pills had acted mildly on his bowels. One of the opiate draughts was now divided, and one half was given, with a direction that the other half was to be taken in three hours, unless sleep were induced in the mean time. I now considered the patient out of danger; and on a subsequent visit two days afterwards, found him calm, free from mental delusion or bodily uneasiness of any kind, with a

moist tongue, a pulse under 80, his bowels sufficiently opened by laxatives which his medical attendant had prescribed, and, in short, in a state of perfect convalescence."

Nothing can more forcibly show the preponderating influence of irritation than the symptoms and result of the case which I have here detailed in the words of Dr. Babington. To say that the loss of blood in no degree facilitated the subsequent successful treatment would be difficult; but certain it is, that bleeding has in more than one case appeared to be the exciting cause of the disease where it did not exist before. I have even known instances, most perfectly authenticated, where, no tendency to this disease having previously existed, the necessary and not very severe depletion by bleeding has been followed speedily by this species of delirium: indeed, in one instance, where hæmoptysis was the original disease for which bleeding was employed, the patient actually died from the delirium tremens which followed. In the case before us, so far was permanent good from resulting, that each successive loss of blood left the patient in a short time more severely affected by his delirium; and to the decided use of narcotics alone did the symptoms appear to yield.

#### CASE VII.

##### *Arachnitis, with excessive Irritability in an intemperate Man.*

IN the year 1823 I was requested to see a gentleman, residing at a distant part of the City, who had unfortunately contracted habits of intemperance, and had become suddenly delirious the day before. Leeches had been applied to his temples; and his delirium, so far from being relieved, seemed to be greatly aggravated, so that he passed the night in most violent agitation, requiring the strength of two or three persons to restrain him; and on one occasion he had nearly leaped out of the window. Such still continued to be his state when the message came to me; but when I arrived two or three hours afterwards, a most striking alteration had taken place: for on his expressing a strong desire in his delirium for a mutton-chop and some porter, the medical man who was attending him thought it not improbable that it might do him good to have some solid food on his stomach, and at once granted his request;—the effect was almost instantaneous. His mind became calm and collected; and when I saw him, little but general nervous agitation and a hurried manner of speaking remained; and a few doses of opium with calomel was all that I saw occasion to recommend. He afterwards told us, that the state of his mind during his delirium was most peculiar; it seemed, as he expressed himself, as if he were two separate persons, for

he knew those who were around him, but still he went through a kind of clear connected dream, in which he was tried for murder, and condemned: and when on the point of leaping from the window, it was in his attempt to escape from the officers of justice.

It is certainly very difficult in a case like this to recognise the existence of any actual inflammation; yet the predisposing causes of this attack, the character it assumed, and the treatment to which it yielded, bore every mark of being immediately allied to those inflammatory affections, coupled with excessive irritability, of which we are speaking, and which sometimes terminate almost as suddenly in death as this did in recovery.

### CASE VIII.

#### *Arachnitis in an intemperate Woman, with great Irritability.*

ANN GROVES, aged 30, was admitted under my care into Lydia ward, December 31st, 1828.—It appeared that her habits were intemperate, but her aspect was robust. We were likewise told that she had cut her forehead in a fall eighteen months before, and had since been subject to headache; for the last year her catamenia had been irregular, and for four months she had complained of more frequent pain in her head. Her present more serious attack had come on suddenly four nights before her admission, when she had started from her bed in a state of violent delirium. She was bled and blistered, and took purgatives, but had been incoherent at times ever since, and very violent, particularly as the evening came on.

At the time I first saw her, she had nothing of the ordinary aspect of fever; her countenance was variable, and occasionally flushed, or grew pale; her actions were quick; pulse 108, sharp; tongue furred, dry, and rough; she complained of thirst; skin moist; she spoke quite collectedly, and apparently rationally, but her manner was very hurried.

Mittatur sanguis ad  $\mathfrak{z}$ xiv.

Hydrarg. Submuriat. gr. ij, Extracti Hyoscyami gr. iv;

Fiant pilulæ quarta quaque hora sumendæ.

Olei Ricini  $\mathfrak{z}$ vj vespere si opus fuerit.

Jan. 1st. Blood buffed. She was bled about three o'clock; she did not faint, and it seemed to make little change in her at the time. About five o'clock, as the evening was closing in, she became very delirious, and required restraint through the night: bowels freely opened by the castor oil; stools passed in bed both in the night and the day. Tongue rather dry, white, and not loaded: she denies having any pain; her eye is quick and unsettled, though she seems to answer rationally.

Repetatur Venæsectio ad  $\frac{3}{4}$  statim.

Abradatur Capillitium et applicetur Embrocatio communis.

Sumat Hydrarg. Submur. gr. iv. et Extracti Hyoscyami gr. iv. quarta quaque hora.

2nd. Blood very slightly and partially buffed; she appeared better for a short time after the bleeding, but soon after became delirious; has been very violent during the whole night, and continues so at this time: she seems to muse for a short time, then bursts out into incoherent or violent expressions. Pulse 96; tongue more moist; two stools.

Adde Antimon. Tartar. gr.  $\frac{1}{4}$  singul. dos. pilularum.

Habeat Olei Ricini  $\frac{3}{4}$  statim.

3rd. No stool; very disturbed the whole night. Pulse 120, rather full; countenance flushed; tongue dry, and brown in the centre, with sordes about the teeth.

Hydrarg. Submuriat. gr. v statim.

Sumat infusi Sennæ cum Magnesiæ Sulphat.  $\frac{3}{4}$  statim et Extracti Hyoscyami gr. vj, secunda quaque hora.

4th. Has had her bowels very freely opened, and has passed a better night; but has this morning experienced a fit, apparently of an epileptic character: after which she became drowsy, and about twelve o'clock had a sudden paroxysm of violence requiring restraint. Pulse 94; considerable action of the carotids.

Rep. Hydrarg. Submuriat. gr. iv.

Extracti Hyoscyam. gr. vj quarta quaque hora.

5th. A tranquil night, and no return of convulsion. She lies quite quiet, her face occasionally flushing. Bowels not open. Pulse 86. Tongue cleaner and moister: she is perfectly sensible. The nates are becoming sore by rubbing about when in her paroxysms of violence. She has taken the pills very regularly.

Hydrarg. Submur. gr. v statim.

Mist. Cathartica si opus fuerit.

Rep. Pilul. ut antea quarta quaque hora.

6th. Bowels very open before eight o'clock yesterday evening. At ten o'clock, after a comfortable sleep, she was very violent for half an hour. The cold wash was applied to her head very copiously, and she became much more tranquil, lying quiet with some moaning all night; has been perfectly sensible ever since, and ate her breakfast with appetite. She complains of her mouth being sore, and the salivary secretion is increased. Pulse 94, quite soft. Tongue moist: no stool to-day.

Hauftus Sennæ, vespere ad alvi dejectiones.

Omittantur pilulæ.

7th. A restless night without delirium. She had pain in the head in the morning, but it has subsided; she is perfectly collected. Bowels freely opened by the senna

last night; no stool to-day; mouth sore, with considerable salivation; pulse 84, quiet, and soft.

*Repetatur Extractum Hyoscyami sexta quaque hora.*

*Haustus Sennæ vespere.*

8th. A pain in the head comes on towards morning; bowels open; pulse 84; skin natural; tongue moist and cleaner; mouth sore: she occasionally starts up in her sleep.

*Repetantur Pilulæ sexta quaque hora.*

*Gargarisma Aluminis.*

9th. Pulse 96, weak.

*Mistura Camphoræ cum Liquore Ammon. Acet. et Spir. Æth. nit. ʒ xv ter die.*

*Haustus Sennæ pro re nata. Vini rubri ʒiv per diem.*

10th. Feels much better in all respects, except a pain a little below the scrobiculus cordis: no stool for twenty-four hours.

*Hydrargyri Submuriatis gr. v statim; et Olei Ricini ʒiſ post horas quatuor.*

12th. The pain below the pit of the stomach continues.

*Applicentur Cucurbitulæ cruentæ et detrahatur sanguis ad ʒxij.*

*Repetatur Mistura.*

13th. The cupping gave much relief, and she was considered convalescent: however, about the 30th she complained of occasional pain in the head, for which she applied some leeches to her temples; and, on the 6th of February, as she stated that when she lay down to sleep she had pain through her head, a scruple of the ointment of tartrate of antimony was rubbed upon her neck, morning and evening.

On the 14th of February she left the Hospital quite well.

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All the symptoms plainly marked this as a case of acute inflammatory affection of the membranes; the quick sharp pulse, the furred tongue, the wild eye, the hurried manner, and the violent delirium: she had been subject to headache; but now she generally denied feeling anything of the kind, or indeed any pain whatsoever. She had been bled before her admission. The first blood which was taken by my orders was much buffed; the second but partially so: and I thought there was reason to fear, that should depletion be carried much further she might suffer from sudden depression. I therefore abstained from bleeding, continued to keep her head cold, and persevered in the active use of calomel with hyoscyamus, and occasional calomel purges. The result was, that on the 6th, when she had taken about one hundred grains of calomel and nearly the same quantity of hyoscyamus, the mouth became sore, and all her symptoms were permanently relieved.—Taking into consideration the intemperate habits of



this woman, the obvious irritability of her constitution, and the epileptic character of the seizure she experienced on the morning of the 4th, I have little doubt that had this case been trusted to bleeding and purging alone, it would have had a less favourable result. Still, however, this was a case in which inflammation bore a much larger proportion to the diseased action going on than in some of the cases I have just detailed, and it accordingly admitted of more active depletion.

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A cautious review of the foregoing cases cannot fail to impress upon the mind the very important peculiarities attendant upon inflammation of the membranes of the brain in all those spontaneous cases which arise so frequently where the nervous irritability has been greatly increased by intemperance or distress of mind. It cannot certainly be laid down as a rule that in such cases bleeding must never be had recourse to; but that it should be adopted with much caution cannot be doubted, and it should be immediately followed by the administration of opiates combined with calomel. The very early use of tonics, and even stimulants, will in many cases be advisable; and improvement in the diet, more particularly the substitution of some solid food, together with a limited quantity of malt liquor, instead of slops, will be beneficial; and in all cases the strictest attention must be paid to the removal of every source of mental disturbance and excitation; and with this view, all restraint, except such as is absolutely necessary for the safety of the patient and his attendants, should be avoided. The head should be constantly cooled by evaporating washes, and the atmosphere should be kept as cool and as pure as possible. The calomel, in conjunction with more or less opium or hyoscyamus according to the degree of irritability, should be continued till the symptoms have completely subsided, or the mouth is affected.

#### CASE IX.

*Arachnitis coming on suddenly, and terminating in serous effusion into the Ventricles.*

—, aged 19, was admitted into Guy's Hospital, under Dr. Addison's care, May 20, 1829. His face was flushed; his eyes rather suffused: he was unable to stand; and he lay in bed on his back, with his eyes fixed, yet occasionally seeming to follow objects; pupils rather dilated, and nearly insensible; breathing sonorous, as if obstructed by a paralytic state of the muscles; deglutition very imperfect; power of motion in the hands, arms, legs and feet, perfect, but feeble. He passed his stools



and urine constantly in bed; seemed to make some effort, but ineffectual, to speak; skin hot; pulse 140, rather sharp; stools of a very dark brownish-green colour; abdomen very flat; the pulsation of aorta felt with unusual distinctness. His gums were sore from mercury; tongue loaded, and sore at its edges. There were several scarifications on the scalp, which were said to have been made the day before; a blister at the nape of the neck was nearly healed.

It appears that on the 5th, having previously enjoyed good health, he was seized suddenly, about twelve o'clock, with intense pain over the eyes, which continued very severe, and the following morning he suffered from dreadful sickness and vomiting. He retained his intelligence till the 10th; since which he has scarcely spoken, till three days ago, when for a short time he appeared more sensible, and was able to speak. It is reported that during the nights he has frequently been very delirious, and even violent; and for the last four days he has passed all his evacuations in bed.

*Applicentur Cucurbitulæ cruentæ scrobiculo cordis et detrahatur sanguis ad ℥x.*

*Radatur caput et applicetur Embrocatio communis.*

*Applicetur Emplast. Cantharidis inter scapulas.*

A few hours after admission he seemed convulsed, and a quantity of froth ran from his mouth for some hours: he appeared to suffer pain, and died about seven o'clock the same evening.

#### SECTIO CADAVERIS.

Dura mater quite natural; on raising it, the arachnoid was so far from showing any effusion, that it was remarked as being unusually dry. The veins of the pia mater were turgid with blood. The convolutions of the brain were much flattened on both sides, leading to the immediate conclusion that the ventricles contained fluid. The cineritious portion of the brain afforded no unusual appearance; but the substance of the brain presented a very great number of bloody points when horizontal slices were removed. The corpus callosum was arched by the distension of fluid beneath. The ventricles contained about three ounces of the most perfectly limpid fluid; and the parietes of the ventricles were so soft, owing to the contact of the fluid, that it was not possible to say whether the septum lucidum had been broken through or not, as it was raised completely with the corpus callosum. The vessels of the plexus choroides, and the other vessels within the ventricles, were unusually turgid. The vessels at the basis all very full, and half an ounce of clear fluid was deposited there. A few miliary tubercles were found in the lungs, and the bronchi rather inflamed: all the other viscera healthy, except partial adhesion of the spleen.

## CASE X.

*Arachnitis slow in its progress, and terminating by effusion into the Ventricles.*

RICHARD HOSECROFT, æt. 27, a strong athletic man, was admitted under my care into the Clinical ward, November 21st, 1827. Between two and three months before, he had been ill with fever in the Westminster Hospital, where he remained for a month. At the early part of his illness he was delirious, and was bled from the arm; there was also the mark of a cupping-glass upon his temples. He left that Hospital six weeks ago, and pursued his employment of a stone-mason for a month, when it appears he was attacked with cramp in the left leg and arm, and much pain in the forehead. He says that he has not been living intemperately, but that he was intoxicated once four days before his admission. He now complains of occasional cramp in the left leg and arm, of which the motion is not perfect, neither is he able to retain any thing in the grasp of the left hand for any length of time. He complains of pain in the forehead, sometimes putting his hand rather more to the right side of the forehead. Vision perfect; hearing impaired: there is considerable dulness of countenance, and he speaks in a very "drawling" manner. Pulse 50, labouring, and somewhat full. Tongue moist. Bowels open.

Applicentur Cucurbit. cruentæ nuchæ et detrahatur sanguis ad ʒxxvj.

Radatur caput, et applicetur Embrocatio communis. Pil. Col. cum Cal. gr. xv statim.

22nd. Could not sleep last night: his head has been more easy since he was cupped, but he still complains of it; bowels open twice; pulse 50, labouring, and not so full; tongue moist, but rather white on each side of the centre.

Applicentur Cucurbitulæ cruentæ nuchæ et detrahatur sanguis ad ʒxiv.

Pil. Colocynthis cum Calomelane gr. xv statim.

23rd. About an hour after he was cupped yesterday, he got out of bed, and remained in a state of violent delirium during the night, requiring restraint. At the time of the visit to-day he was lying in a drowsy state, but easily roused to a certain extent. He was incapable of giving a rational answer, frequently uttering short incoherent words. Tongue moist and clean; pulse 64, feeble; bowels not open.

Injiciatur Enema commune statim.

Sumat Hyd. Submuriat. gr. j ter die

et Mist. Camphoræ ʒjls quarta quaque hora.

Applicetur Empl. Cantharidis nuchæ.

9 p. m. Is lying quiet; pulse 62, rather sharp, but very readily compressible: a large quantity of fæculent matter followed the injection.

24th. Passed a quiet night. Complains of headache; pulse 66, more natural; tongue rather white; bowels very much opened: was sensible enough to ask for the night-chair, and is altogether more rational.

*Repetatur Hydrarg. Submurias.*

25th. Passed a pretty good night; pulse 55, rather labouring; tongue furred: he complains of the same pain in the forehead, and some tenderness of the abdomen. He got out of bed last night and drank half a pint of the House beer, from which however he is not worse: bowels open.

*Repetantur Hydrarg. Submurias et Embrocatio communis.*

26th. Rather more torpid and drowsy; headache the same; pulse 70; bowels open.

*Applicetur Empl. Cantharidis pone Aures*

*Repetatur Hydrargyri Submurias.*

27th. Got out of bed delirious last night: is this morning lying quiet, but more drowsy, and does not seem to understand questions so readily. Pulse 72, rather smaller; tongue the same; bowels not open: pain of abdomen less: gives some indistinct and confused account of a shooting pain in the limbs, particularly on the left side.

*Applicentur Hirudines xiv temporibus.*

*Repetantur Medicamenta.*

According to some Hospital arrangements this case now passed from my immediate superintendence, but I had an opportunity of seeing it daily.

28th. Was talking incoherently great part of the night, and now appears to see fanciful objects and to converse with persons who are not present, and imagines that he is counting money. Pulse 70, weak; tongue moist, not so furred as yesterday: several loose dejections. Says that he has less headache.

*Extr. Hyoscyami et Camphoræ āā gr. iij ter die.*

*Cal. gr. ij hora somni.*

29th. No sleep in the night; was constantly talking, but not violent; pulse 66, rather hard; good deal of pain in forehead: talks incoherently on different subjects; face flushed: one stool.

*Fiat Sectio Arteriæ temporalis et detrahatur sanguis ad 3x.*

*Repetantur Medicamenta.*

30th. More quiet since the bleeding, and has talked less; pulse 72, strong. Appears not to understand questions which are put to him so well as he did; articulation more indistinct: several lumpy dejections; tongue rather white.

*Fiat Sectio Arteriæ temporalis et detrahatur sanguis ad uncias decem.  
Habeat Olei Ricini ʒiſ statim. Repetatur Hydrarg. Submuriæ.*

Dec. 1st. Has not been so quiet since the last bleeding: body in constant but slight motion, and he is grasping at imaginary objects; pulse 84, rather sharp; tongue moist; bowels open, three times: complains of pain at the top of his head.

*Rep. Sectio Arteriæ et detrahatur sanguis ad uncias decem.  
Rep. Hydrarg. Submuriæ.*

2nd. He has been more disturbed since last bleeding; pulse 90, of less strength: is not violent, but very restless; bowels open. Is always able to take nourishment.

*Repetantur Pilulæ.  
Radatur caput et admoveatur Emplastrum Cantharidis.*

3rd. Passed a very restless night; pulse 140. He is less sensible; face irregularly flushed; pupils dilated, particularly the right: has scarcely power to protrude the tongue, and is grasping at imaginary objects. I saw him at 10 o'clock A.M. He appeared excessively debilitated, and insensible of what was said. I afterwards saw him at eleven o'clock; he lay on his back, breathing with difficulty, and making considerable gurgling noise, as if a quantity of mucus were in his throat, or rather, as if he had but imperfect power over the muscles of his posterior fauces. His left side was paralytic; the hand evidently powerless. The right hand was waved in a convulsive manner, and, without appearing to know it, it took hold of his paralytic hand and raised it. He did not seem to feel in the leg of the left side; but he obviously did in the right; his pupils contracted and expanded irregularly. About one o'clock, when he was raised to have some application made to his head, the pulse suddenly fell, he became almost motionless, his face pale, breathing slow, and at long intervals, and he died in half an hour.

#### SECTIO CADAVERIS.—Dec. 4th.

On raising the skull the dura mater was very easily detached from the bone, and was then seen peculiarly tense and full; and on removing the dura mater, the convolutions of the brain were most remarkably flattened on both hemispheres, and the surface of the arachnoid was rather drier than natural. There was not the slightest effusion under the arachnoid; nor much more vascularity than natural, though some who were present thought the small red vessels were rather too numerous. On examining very carefully the superior portions of the cerebrum, nothing unnatural appeared; the consistence was firm, and there were a few more bloody points than are generally found; fluctuation became very soon evident

in the ventricles; and they contained rather more than two ounces, by measure, of perfectly clear fluid, one ounce of which I sent to Dr. Bostock for chemical analysis. All the ventricles were greatly distended, so that the smaller ventricles were much larger than usual, and more developed. The plexus choroides on each side rather exsanguine, and containing a few watery vesicles. Every other part of the brain most minutely examined, gave no morbid appearance whatsoever. About half an ounce of fluid was in the basis.

The lungs healthy, but in the upper part rather œdematous, and the bronchial tubes filled with mucus, but this was watery and not tenacious; there was about an ounce of fluid effused in each cavity. The heart and large vessels healthy. The liver of a peculiar chocolate colour, with some marks internally as if from small patches of ecchymosis, and those more conspicuous on the outside; its texture tolerably healthy. The spleen healthy. The kidneys remarkably healthy. The bladder contained some urine, and was slightly vascular. Intestines quite healthy; in one or two places a degree of congestion was observed in the valvulæ conniventes. A lumbricus was found in the ileum.

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In this case there is very little reason to doubt that a certain degree of inflammatory action was going on the whole time within the head: the relief, however, which bleeding afforded was always equivocal; and had the calomel completely affected his constitution, there is much probability that the effusion of serum which ultimately terminated his life would have been prevented.

## CASE XI.

### *Symptoms of commencing effusion into the Ventricles removed.*

HENRY TURNER, aged 34, admitted, under my care, August 27, 1828. He has not enjoyed good health for four years, suffering pains in the head and limbs, which have obliged him to give up work several times; and for the last month he has had intense pain in the head, which has been still worse for five days. Has been cupped and bled; and although this has relieved the pain, he has experienced more of dull stupidity and indistinctness of vision, which has been coming on for the last fortnight, and now he cannot distinguish the figures of the watch: he complains of weakness in the left arm, and numbness in the left thigh: pulse 62, oppressed; countenance dull, with a

vacant stare; articulation slow. The pain is chiefly in the forehead, and more particularly on the right side, and in the ball of the eyes; bowels open by medicine. He denies ever having had any sudden fits.

Sumat Hydrarg. Submur. gr. j ter die.

Applicetur Emplastrum Cantharidis nuchæ et fiat perpetuum.

28th. Pulse 68; bowels not open.

Hæustus Sennæ ad alvi dejectiones. Radatur caput.

Repetatur Hydrargyri Submuriatis quarta quaque hora.

29th. He gets up, but he totters as he walks; his sight varies a good deal, but is often very bad.

Repetantur Pilulæ.

Sept. 1st. Dull and stupid; he walks weakly, but without any decided paralysis: pupils sluggish and dilated.

5th. Gums slightly tender; pulse 72; sight improved; pupils much more natural.

6th. Sumat Hydrargyri Submuriatis gr. j ter quotidie.

12th. Pulse 80; less stupid.

19th. He walks and sees much better; mouth still slightly affected: no pain in the head; quantity of urine not increased by the mercurials; pulse 100, weak.

22nd. Eyes still dim.

Applicetur Emplastrum Cantharidis nuchæ.

29th. In every respect greatly improved; manner more free; sight still dim.

Oct. 3. Still complains of his sight.

Applicetur Emplastrum Cantharidis nuchæ.'

5th. Sight much improved; and in all other respects he says he feels perfectly well.

A few days afterwards he left the Hospital without complaint.

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In this case, the repeated application of blisters, and the continuance of grain doses of calomel for five weeks, overcame all the symptoms, which at first appeared formidable.

## CASE XII.

*Arachnitis, with deposit of Pus in the Vessels, connected with suppuration on the Dura Mater from a blow.*

GEORGE BOTWELL, a healthy-looking man, aged 42, of middle stature, was admitted, under Mr. Morgan, in the evening of May 25th, 1829. About an hour before his

admission, while in a state of intoxication, he was removing the harness from his master's horse, when the animal knocked him down and trampled upon him: he was stunned by the injury, but shortly regained his senses.

There were three wounds; one immediately over each eyebrow, the other just under the zygomatic process of the temporal bone of the right side. The frontal bone was denuded to nearly the full extent of each wound; the one on the right side being the largest. Several ribs were broken on the right side, and some of them in more places than one. Pulse soft, rather slow, and feeble; breathing hurried, short, and painful; no vomiting, sickness, nor pain in the head; but he was dull, sluggish and sleepy, from intoxication. The wounds were dressed with adhesive plaster; a bandage passed round the ribs; and he was ordered eight grains of calomel immediately, and the House mixture in three hours, which was to be repeated till the bowels were well opened.

26th. Restless during the night, very drowsy, but unable to sleep; breathing quick and more painful; emphysema extending from the clavicle to the hip; has been freely purged; pulse 98, hard and quick.—To be bled to syncope, and repeat the opening mixture.

27th. The action of the bowels has been kept up by the mixture, and the breathing considerably relieved by the bleeding; has not slept well, but better than last night; complains, for the first time, of pain in the back part of the head: the pulse is more frequent to-day, being now 104, but not so hard and quick as yesterday.—To be bled from the arm to  $\frac{3}{4}$ xvj, and to take three of the calomel and colocynth pills immediately.—The breathing continuing difficult in the evening, several punctures were made with a lancet in the side to let out the confined air.

28th. Much better in every respect; the breathing much relieved, and the pain of the head very nearly gone.

The man was seen regularly every day from the last date without complaining of one unfavourable symptom; and nothing more was done than dressing the wounds from time to time, adjusting the bandage, administering occasional purgative doses, and keeping him on low diet. Under this management he continued gradually to improve, and on the 10th of June was considered a proper patient for the Convalescent ward, to which place he was removed. From the 10th till the 14th he continued apparently improving, but absconded from the Hospital in the course of that day, and in the evening returned intoxicated, as is supposed; but says himself that he drank only one pint of porter.

The morning following (i.e. the 15th), he complained of very great weight and pain in the upper and back part of the head, and of great restlessness during the preceding night; but had no vomiting nor sickness; the pulse hard, rather quick, small, and regular, not exceeding 95.—To be bled from the arm to eight ounces immediately, and in the evening from the nape of the neck by cupping, unless the pain in the head be previously relieved; and to take three calomel and colocynth pills immediately.—This bleeding was carried to xvj ounces, to the great improvement of the pulse during



the flowing of the blood. In the evening the pulse was again hard and labouring, the pain in the head but little relieved; in consequence of the pulse, he was again bled from the arm in lieu of the cupping.

16th. Pain and weight in the upper and back part of the head increased considerably; frequent rigors (for the first time) during the night, with slight twitching of the arms when asleep; slight protrusion of the globe of the right eye; incoherent talk; hot, pungent skin; pulse small, hard, and quick; no sickness, paralysis, numbness, or dyspnoea. To be cupped from the nape of the neck to  $\text{xxx}$ , and to take eight grains of calomel immediately.

17th. Aggravation of all the last symptoms; greater protrusion of the globe of the eye, and drowsiness; the twitching continues very slight; the pupil of the left eye is dilated, but obedient to light; respiration much more difficult; the pulse has lost its hardness and quickness, is now soft, rather full, much slower, but perfectly regular. About two hours before death he was first observed to have stertorous breathing.

[For the notes of this case, which I had only casually observed during life, I am indebted to Mr. J. Perrins, who at the desire of Mr. Morgan furnished me with them.]

#### SECTIO CADAVERIS.—Thursday, 18th June.

The body rather emaciated, with an appearance of discolouration from subcutaneous effusion of blood on the right arm, and the upper part of the chest on the same side. There was an external wound through the scalp, on the front of the forehead towards the right side, half an inch in length, and the bone beneath was naked and rough.

On removing the scalp, a portion of bone, denuded of the pericranium on the right side of the frontal bone, was slightly discoloured, looking of a dead yellowish white, and there was an evident line of separation forming around it.

When the calvaria was removed, a patch of thick yellow green pus came into view, deposited upon the outer surface of the dura mater, and corresponding with the diseased bone; it was thick and curdlike in its consistence, and of the thickness of a shilling; there was very slight appearance of surrounding vascularity. On examining the inside of the frontal bone in contact with this suppuration of the dura mater, it was seen covered with adhering pus, and the circumference red from a number of vessels running perpendicularly towards the diseased portion of the bone.

Raising the dura mater, it became evident that it was thickened, had lost its polish on the inner surface, and was vascular; appearing as if



a deposit of lymph had taken place on the inside: this altogether rendered the membrane so thick, that a very evident depression was visible upon the corresponding portions of the convolutions of the anterior lobe of the cerebrum. The vessels of the pia mater and arachnoid on both sides were large and congested, and the convolutions of both hemispheres were slightly flattened; no serum was effused under the arachnoid.

Slicing the brain, no disorganization and no inordinate vascularity was found; but in the ventricles several drams of transparent fluid, very slightly milky, had collected; and in the posterior cornu on each side a small quantity, (about twenty drops,) of pus had subsided to the bottom of the fluid.

Raising the brain from the basis, we discovered that between the arachnoid and the brain, puriform lymph was effused, so as to form a coating over the whole anterior face of the cerebellum, the pons varolii, the medulla oblongata, and the lower part of the optic nerves; and this effusion extended backwards some distance over the opposed surfaces of both lobes of the cerebellum, and in a small degree over the posterior lobe of the cerebrum on the right side. But the most singular circumstance was, that both on the cerebrum and the cerebellum, vessels of considerable size could be traced (apparently veins) turgid with pus; and on pursuing the investigation, and raising the orbital plate of the frontal bone, we found that the veins coming from the right eye were likewise distended with pus, but the eye itself did not appear disorganized: the cavernous sinus on both sides was full of pus, and the dura mater was detached from the cuneiform process of the sphenoid bone by pus, the bone being rather softened at that part. The other sinuses of the brain and the jugular vein traced down the neck were healthy, containing the ordinary coagula. (Plate I.)

*Chest.*—Three or four ribs, which had been broken on the right side, were but imperfectly united: the surface of the lungs showed slight marks of subsided inflammation; one mass, about the size of a small bean, of yellow deposit inclining to suppuration was seen on the surface.

*Abdomen.*—The liver had a small ecchymosis, evidently corresponding with one of the broken points of the ribs, which had pressed upon it through the diaphragm without wounding that muscle. Kidneys quite healthy.

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In this case we observe a circumstance which is so often found connected with injuries of the head,—the occurrence of a long period of apparent

convalescence before the severe and dangerous symptoms begin to show themselves; not less than twenty days having elapsed between the accident and the train of symptoms which marked the inflammation of the membranes preceding death.—The inflammation of the veins at the base of the brain and at the posterior part of the eye, connected with the protrusion of that organ during life, is another circumstance the more worthy of remark, as other analogous facts, in which the eye has been completely destroyed from venous inflammation, are I believe upon record.

### CASE XIII.

#### *Arachnitis on the left Hemisphere from fracture.*

JOHN LEWIS, aged 11 years, was admitted on the 6th of March 1828, under the care of Mr. Morgan. His face had been crushed by a wheel of a carriage, which had passed over it, and the bones of the nose and cheek on the left side had been fractured.

He lay with little appearance of sensibility, but yet understood and replied to questions when roused and forcibly addressed. He had no paralysis; but it was thought that some convulsive twitches occasionally took place on the left side. The body presented the appearance of health. There was a good deal of ecchymosis about both eyes, and some laceration under the left and about the nose: no other visible injury. He died on the sixth day after the accident.

### SECTIO CADAVERIS.

On removing the scalp several patches of ecchymosis were seen between it and the calvaria; the largest of these was situated at the posterior part of the head. At these spots the scalp scarcely adhered to the calvaria, but elsewhere it did so with considerable firmness. The smooth internal surface of the dura mater was of a light red; between it and the arachnoid on the left side there was a pretty generally diffused thin layer of puriform lymph of a light-yellow colour with a tinge of green, which adhered partly to the dura mater and partly to the arachnoid. It dipped down between the hemispheres, but was wholly confined to the left side of the falx. At the under part of the left anterior lobe a portion of brain of about the size of a shilling was softened to the depth of about half an inch, and a few minute ecchymosed spots, such as are usually met with in lacerated brain, were visible at this part. There was a little marbling of a light venous hue in different parts of the medullary matter. There was very

little, if any, laceration of the dura mater, but a portion of the left orbital plate of the os frontis appeared to have been pushed inwards so as to bruise the brain at the part above mentioned; the fracture was continued through the sphenoid bone by the side of the left cavernous sinus, and at this part there was a considerable quantity of extravasated and coagulated blood beneath the dura mater.

The other parts of the body were not examined.

## CASES ILLUSTRATIVE OF HYDROCEPHALUS.

### CASE XIV.

*Effusion into the Ventricles, with turgescence of the Vessels after inflammation, in consequence of a fall.*

A CHILD, four years of age, was admitted into Guy's Hospital, June 1825, who had broken his right fore-arm by a fall; and shortly after his admission was attacked with two or three fits of convulsion. On inquiry, it appeared that the mother had already lost two children by hydrocephalus.

The bowels became very costive; and on the 21st of July, when I first saw it, complete insensibility and coma had come on. The pupils did not act; pulse 108. The child neither cried nor moaned.

Habeat Hydrarg. Submur. gr. j secunda quaque hora.

Infricetur Ung. Hydrarg. fort. ʒj ter die.

Injiciatur Enema ex Olei Ricini ʒj et Assafœtidæ ʒj statim, et vespere.

Radatur caput, et Applicetur Embrocatio communis.

Applicetur Emplast. Cantharidis nuchæ.

22nd. Slight improvement, and some occasional sensibility; bowels open; pulse 104.

Repetantur Medicamenta.

24th. The mouth affected by the mercury.—He died the same night.

### SECTIO CADAVERIS.

All the vessels were in a state of great congestion; particularly the trunks and larger branches, which were filled with dark blood, and the ventricles were much distended with clear fluid.

In this case inflammatory action had been excited in the vessels of the brain by the fall which the child had experienced, and effusion had probably taken place early in the disease. There is no doubt that it existed before the 21st; and there is every reason to believe, from the history of the other children of the family, that there was a great predisposition to the peculiar state of vessels favouring this effusion.

### CASE XV.

#### *Effusion of Serum into the Ventricles subsequent to a blow.*

For this and the following case I am indebted to Mr. J. Streeter, by whose kindness I was present at the examination.

THE subject of this case was a girl of seven years of age, of peculiar vivacity, though of weakly constitution; the tibia and fibula of each leg were bent considerably forwards, owing to an early deficiency in the earthy deposit.

About a month before her death, being pushed by a man carrying a burden, she fell with violence on the pavement, and struck the back of her head; she was stunned by the blow, and from that time complained occasionally of pain in the head. Ten days after the fall it was discovered that she saw objects double, endeavouring to pick up two halfpence when only one was before her: this, however, was not thought much of, till six days before her death, when she was seized at seven in the morning with a fit, in which speech was lost, and the body and limbs convulsed. At eleven o'clock the same happened; and from that time till her death fits were frequent, at one time returning every hour in the day, afterwards every two or three hours, and lasting for a quarter of an hour; but they changed their character considerably, having latterly a very peculiar set of symptoms: the exertion of the voluntary muscles was most violent; sometimes rolling herself with force from one side of the bed to the other; and frequently throwing herself forward from the bottom of the bed, where she lay, to the top, so that she would have injured herself, but for pillows being put to break the force of the blow. She retained her senses to the last.

#### SECTIO CADAVERIS.—April 16th.

On removing the skull, the dura mater appeared rather turgid; and on raising it, the convolutions of the brain were smooth by compression, and the veins remarkably large, but no fluid at all was effused. On carefully examining every part, no alteration of structure could be found either in the cerebrum or cerebellum; but the corpus callosum was raised into an

arch by the fluid beneath ; the ventricles contained about an ounce and a half of clear fluid, which freely passed from one to the other. The smaller ventricles were also filled ; the commissura mollis was soft, but not ruptured ; the calamus scriptorius distended. There was no disease of the basis, but some fluid was there, which had probably made its escape from the cavities.

Lungs and heart healthy. Liver rather large, but natural, with a few yellowish patches, not going deep into the substance ; gall-bladder full of bile of a green colour. The whole intestinal canal appeared to have suffered irritation, being much contracted in many parts, and in a state of intus-susception in others, and having small portions distended with green bile. The mesenteric glands were slightly enlarged.

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In the two preceding cases is exemplified one of the frequent causes of this distressing malady,—the injury sustained by blows and falls : nor is it fully ascertained what the condition of brain is, which is induced in the comparatively slight cases of concussion, to which, after the lapse of days and weeks, we may often so plainly trace the symptoms terminating in effusion. That the symptoms are not simply those of acute inflammation cannot be questioned ; whereas, it will easily be conceded, that in the two foregoing cases great irritation existed during the whole, and that the appearance of the large vessels indicated congestion. The most minute examination after death disclosed no lesion of substance, nor any excessive vascularity in the smaller arterial branches, nor any tendency to puriform deposit or the effusion of fibrin. Still, however, we know, that in cases of more decided and severe concussion, such mechanical injury takes place in the substance of the brain as to weaken or at once to lacerate the vessels ; and we may therefore conclude, that some analogous though slighter alteration has been produced, followed most probably by a weak inflammatory action, in cases where slow effusion of watery fluid is the result.—The appearance of the intestinal canal was one to which my attention has been two or three times attracted on the examination of children who have taken considerable quantities of calomel for diseases of this nature, and strongly marks the probable irritation suffered during life.—I have had a portion of the intestine represented in an engraving in this volume. (Plate IV.)

## CASE XVI.

*Tumour in the Cerebrum, followed by Effusion in the Ventricles.*

A LITTLE girl, about four years of age, remarkably quick and intelligent, had been observed for several weeks to be gradually undergoing a marked change in her habits and manner: her bowels had become costive, and she complained of frequent drowsiness, so that two or three times she had been found asleep in the passage during the day. The gentleman by whom she was attended, a practitioner of much zeal and sagacity, considered the symptoms decidedly those of hydrocephalus: she had several strong threatenings of convulsion, which seemed to be checked by leeches: she sunk however after several days' illness, retaining her faculties till almost the last hour of life. Leeches, and calomel given with caution but with decision were the chief means employed.

## SECTIO CADAVERIS.

On drawing the hemispheres of the cerebrum asunder, they were found to adhere together a little at the lower part, just above the posterior portion of the corpus callosum; and here a small hard cheesy tumour was seen superficially imbedded in one of the convolutions. (Plate III. Fig. 2. There was no increased vascularity of the membranes generally, and the whole substance of the brain was remarkably healthy, firm, and in a good state for demonstrating its structure. The ventricles, however, contained nearly two ounces of pellucid fluid, and the membrane lining them was rather more easily distinguished than usual, from the vessels being full.

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In this case the irritation of the tumour most probably gave rise to an inflammatory condition of the brain, which led to the serous effusion; but we have much reason to infer, both from the character of the symptoms and the morbid appearances, that irritation and a congested state of the vessels bore a great share even in the early part of the disease, and that effusion had actually commenced at that early period, when her tendency to sleep became observable.

## CASE XVII.

*Arachnitis, terminating with symptoms of Effusion.*

ELLEN COTTER, aged 9, was admitted into the Clinical ward in the winter of 1826, labouring under acute pains in the head, intolerance of light and sound, extreme rest-

lessness and delirium; pupils much dilated, and contracting very little on the admission of light; pulse quick, hard, and rather full; tongue dry and furred; lips chapped and dry; skin dry and hot, particularly on the surface of the head; action of the carotids much increased; pain on pressure at the pit of the stomach; abdomen rather hard; bowels confined; she had passed but one scanty dejection the day before.

This attack had come on six days previously, when she had returned from school with pain across the forehead, and in the evening she experienced chills and sweating. These symptoms, more particularly the headache, had continued ever since; and the night before her admission she was extremely restless, complaining of pain in the head, shrieking out, and talking incoherently.

The jugular vein was opened; the head shaved, and kept cold with a wash. Calomel was given every four hours, and an injection of castor oil was administered.

She passed a very restless night, with frequent fits of screaming, though occasionally sensible. She had two or three dark liquid dejections. In the morning she was constantly moaning; had slight strabismus; the left pupil was more dilated than the right, and light did not act upon either; pulse 168: subsultus; teeth covered with black sordes; tongue loaded with darkish-brown fur; abdomen rather rigid. She was now ordered to take scammony and calomel till the bowels were more effectually opened; and a blister was applied to her neck. As the day advanced she sunk into a tranquil state, with the pupils firmly contracted. About twelve o'clock at night she became convulsed, and this continued for an hour, when she died.

Although no examination was permitted in this case, the symptoms of serous effusion into the cavities of the brain were so well marked, that it is scarcely possible to be mistaken: and they show in rapid succession all the stages of this most dangerous disease. There is every probability, that had the first symptoms been met by active depletion and by mercurials, the disease might have been arrested in its active inflammatory stage, which was long and well marked.

### CASE XVIII.

#### *Sudden attack, probably with Effusion of Serum.*

ANNE PETTET, aged 10, an intelligent, strong, and active child, was admitted under my care into the Clinical ward, Guy's Hospital, November 6th, 1829. She had been quite well up to the 30th of October, when she complained that she could not see distinctly, and that objects appeared double; she complained too of pain in the temples, with drowsiness and a sense of oppression in the head. The sister, who attended her to the Hospital, said she thought she had observed some obliquity of vision the same day, but was confirmed in her suspicion the following morning, when it was evident to all that the



child squinted. From this time a very striking change took place; the child, from being quick, sensible, and sprightly, became dull and listless, the expression of countenance vacant but not idiotic, at least not in so marked a degree as at present. She now began to fancy the most ridiculous things, and to talk in the strangest manner; and, left to herself, was continually dozing; if roused, it was only with difficulty she could be kept awake; and when allowed to go to bed she fell into a profound sleep directly, breathing loud and sighing heavily. In walking to the Hospital this morning she was suddenly seized with vertigo; she turned pale, staggered, and was on the point of falling, when she was supported. There is strabismus and double vision, with dimness of sight and dilatation of pupils; a vacuity of countenance quite idiotic; speech thick and inarticulate; consciousness and sensation perfect, but not the same integrity of volition; she walks unsteadily, inclining towards the right side; does not appear to lift her legs, nor, on the other hand, can she be said to drag them, but moves them listlessly. She is now cutting her second teeth, which, as they are rising irregularly, may prove a source of irritation, but she has never complained of them: there is no pyrexia.

Abradatur capillitium, et capiti raso applicetur Embrocatio communis de hora in horam renovanda.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad ʒviij.

Habeat Hydr. cum Cret. gr. v statim; et Olei Ricini ʒfs postea.

R Hydrarg. Submuriatis gr. fs.

Sodæ exsiccatae gr. iʒfs.

Pulver. Cretæ comp. gr. v. Fiat pulvis sexta quaque hora sumendus.

9 o'clock, P. M. Sleep profound, but stertorous; had been made sick by the castor oil, and was ordered a Senna draught in the morning.

7th. No longer sees double, and states the pain in her forehead to have been relieved by cupping; had passed no motion, and was therefore given twelve grains of the compound Scammony powder directly; urine very scanty and turbid; pulse 108; tongue and skin natural.

Applicentur Hirudines x temporibus; Habeat Haustus Sennæ statim; Repetantur pulveres.

8th. Countenance more sensible and tranquil; head free from pain and oppression; obliquity of vision seems to vary a little in degree, but is more marked in the left eye than in the right; pulse 120; two bilious slimy evacuations.

Repetantur Hirudines x temporibus; et repetantur Pulveres.

9th. Improvement considerable. Pupils contract readily to the stimulus of light; pulse 120; two bilious stools.

10th. The gums of the molar teeth were lanced.

Nov. 23rd. She has gone on improving slowly; the mouth becoming sore, the mercurial was given up and purgatives continued; blisters also applied behind the ears and between the shoulders.—The strabismus continues well marked, she is still



unsteady in her walk, and there is a slight deficiency of strength both in the upper and lower extremity of the right side.

Dec. 2d. The strabismus is gone, and nothing remains but weakness of the lower extremities, which however is so slight that she walks about without any support. She now takes gentle tonics, and half a grain of calomel twice a day.

In this case the exciting cause of the disease must remain a matter of conjecture; but there is great reason to believe, that the peculiar vascular action on which effusion depends had been set up, and from the duration of the strabismus, as well as the continued weakness of the limbs, there is too much ground for inferring that effusion had actually taken place. It is by no means impossible that some fixed organic cause may exist in the brain, and that the irritation attending the process of cutting the second set of teeth was the immediate source of the morbid action producing the present attack.

#### CASE XIX.

*Extensive Effusion into the Ventricles and under the Membranes of the Brain, with softening of the Cineritious, and increased firmness of the Medullary Substance, consequent on the Irritation of Teething.*

M. J. was a patient of Dr. Addison's, to whose kindness I was indebted for the opportunity of witnessing the dissection, October 8th, 1828. She was three years and nine months of age at the time of her death; she began to cut her teeth at ten months, and during that process suffered a good deal; but was able to run alone at fifteen months, and it appeared that till nearly the age of two years she had enjoyed very good health, and was even remarkable for her strength, raising herself, as her father said, from the ground without even the assistance of her hands. About this time she became the subject of several convulsive fits, ascribed entirely to the irritation of teething, and bearing the usual character of such attacks. Instead of getting well as these subsided, her whole manner and appearance were altered; she was restless during the night, and discontented and fretful through the day; her limbs became gradually stiff and extended with a spasmodic force, without any appearance of actual paralysis; and her mind, which before was active, fell evidently from day to day into a state of greater imbecility. At length, for a full year before her death, she was perfectly stiff, incapable of the slightest effort; the thumbs were generally drawn in towards the palms of the hands, and the feet were stretched out to the utmost, and drawn in towards each other; there was constant difficulty of swallowing; the bowels were constipated; and the father was convinced that for the last year all power of vision was gone. From this time she was kept alive by the constant and unwearied attention of her mother; and after three less restless nights than she had passed for several months she became convulsed, and then quietly sunk.

## SECTIO CADAVERIS.

The body was in a state of the most extreme emaciation ; the feet still retained the position in which they had been so long drawn.

The skull was perfectly formed, the bone of the usual solid character, throughout rather thin than otherwise, but not remarkably so considering the age. In sawing through the bone the dura mater was wounded, and about five ounces of limpid fluid escaped ; but it was not possible to say whether this had been contained external to or beneath the arachnoid. The dura mater adhered to the skull, particularly at the posterior part, with most remarkable strength.

When the calvaria was removed, the dura mater was perfectly flaccid, owing to the escape of the fluid by which it had been distended ; there was no preternatural deposit internally on the dura mater ; it was white and shining, but a few more vessels were visible upon it than are generally seen. The arachnoid was not thickened, but a considerable quantity of fluid remained beneath it, though it had been wounded in more than one place ; the pia mater moderately vascular. The whole volume of the brain was contracted, so as to be much smaller than the size of the head would have led us to expect. On making an horizontal section, the knife met with remarkable resistance as soon as it had passed through the cortical substance, communicating in parts nearly the sensation of cutting through soft cartilage. The appearance presented by the section was very peculiar. The cortical part was thick and pulpy ; the medullary part hard and contracted, bearing a smaller proportion than usual to the whole ; and when the convolutions were seen towards the edge, the contraction was so obvious that they looked like thin white bands penetrating the cortical part. The hardness of the whole medullary portion was such, that by scraping with the handle of the scalpel, no impression whatever was made by a degree of force which would have scraped in pieces an ordinary brain, but the scalpel passed over the cut surface as it would over a membrane ; towards the edges the hardness suddenly increased, so that there was a margin round the whole, more white and prominent than the rest. When a portion of the brain was pressed between the fingers it gave a very peculiar sensation, the cortical part yielded readily, and the convolutions of medullary matter were felt beneath like an irregular hard body ; and by pouring a little water on the outside and gently rubbing, the whole cortical portion

was removed, leaving the medullary convolutions exposed, quite firm, in ridges like the rugose mucous surface of the stomach in some animals; it was perfectly firm, allowing to be freely rubbed and washed. (Plate Fig. 2.)—Some portions of the brain were rather harder than others, but all parts, on being cut, gave the idea of a wax model rather than brain. The ventricles were moderately distended, and retained their open form, as if moulded in wax; the membrane lining them was thick, so that in a section it seemed as if they were lined with a semitransparent membrane, of a line or two in thickness. The plexus choroides natural.

The cerebellum was pallid, and the cortical portion soft; and when cut into, the corpus rhomboideum with the surrounding medullary matter was found completely softened, but round the outside the brain was nearly as hard as in the cerebrum, so that on scraping very gently with the handle of the scalpel, a cavity with pretty firm parietes was apparent.

On viewing the basis of the brain the nerves were seen standing, harder and more unyielding than usual, more particularly the optic nerves, which stood erect, and were elastic to the feel, cutting like soft cartilage. The olfactory nerves were soft and flabby.

The medulla oblongata and the small portion of spinal cord removed with it partook, though less remarkably, of the general hardness. The vessels of the base were natural.

In the lungs were a few miliary tubercles,—some very transparent, others with yellow spots in their centres. The liver was itself healthy; but the gall-bladder was contracted, and appeared to have been a considerable time in that state. The rest of the viscera healthy.

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In this case there is very little evidence of acute inflammatory action. If it did exist, it must have been for a very short time, quite at the commencement of the disease, either previous or just subsequent to the first convulsive seizure, when the irritation so often attendant on teething appears to have had a large share in all the symptoms. Such irritation we know to be quite capable of producing convulsions and irregular muscular contraction of long duration, when there is no reason to think that effusion has taken place or that active inflammation exists; and it is not improbable that a continuance of that morbid state produced by irritation may so influence the vascular condition of the brain as to give rise to effusion. In this family there is a strong predisposition to effusion in the head: the

mother has had seven children: one was probably born with hydrocephalus; for although the head was not observed to be large at the time of birth, it decidedly became so before the child was three months old, while it still appeared in perfect health, except that it could not hold up its head; and it lived to the age of sixteen months, the head growing very large, so that it was found to contain a pint and a half of fluid after death. Subsequently to this she had two very healthy children, now living; the next was the subject of the foregoing case (Case XIX.); and the next, which was perfectly well during the illness of its sister, has since become the subject of nearly the same symptoms, as will be seen by the details of the following case (Case XX.). Though the tendency to this fatal disease is thus dreadfully marked in the family, it is not to be traced in the families of either the father or the mother.

In this case we have the usual difficulty in ascribing the various symptoms to the precise causes on which they depend. The following circumstances were more particularly remarkable in the dissection: Effusion, chiefly situated externally to the brain; a very unusual softening of the cineritious matter; a most singular condensation, as if from pressure, of all the medullary substance, more particularly towards its surface; a diseased condition of the corpus rhomboideum, and a state of the spinal cord, as far as it was traced, corresponding with that of the medullary portion of the brain.—The leading peculiarities of the symptoms during life were the spasmodic and rigid extension of the whole body and the limbs, and the gradual abolition of the mental powers. Dr. Addison was himself inclined to ascribe the peculiar spasmodic state, and the absence of the more ordinary symptoms of paralysis, to the fact of the effusion having been so much external to the brain; and I think this view taken in conjunction with the softened condition of the cineritious portion of the brain has much probability on its side; and it is borne out in some degree by a case which I shall hereafter insert, and for which I am likewise indebted to Dr. Addison and Mr. Dunn, where a coagulum of blood formed in the cineritious portion of the brain was attended with convulsion and not with paralysis. The same fact I shall have occasion to observe as occasionally connected with tumours both fungoid and scrophulous pressing upon or irritating the external parts of the brain chiefly. How far the unhealthy state of the corpus rhomboideum might have been influential in producing the symptoms will likewise present itself to the minds of some; and here I

confess a doubt arises as to the validity of the explanation just advanced, which will not be removed by the perusal of the case of Amelia Humphreys, hereafter to be mentioned under the head of Tumours (Case CLXVII); where, though the scrofulous tubercles were in almost every instance closely connected with the cineritious substance, yet one of those most fully developed was situated in connection with the corpus rhomboideum, and the symptoms in this case were more of the spasmodic than the truly paralytic character. In the case likewise of Mary Jessett (Case XXI.), where a striking combination of spasmodic with paralytic symptoms occurs, the chief mischief was undoubtedly in the medulla oblongata which pressed on the cerebellum. Here, however, a new source of doubt arises, for the spinal cord, in the case of Jessett also, was decidedly more firm than natural, as in the case to which the present observations more particularly refer: but this was far from being the case in the spine of Amelia Humphreys, which, though not quite natural, was of a rather softer texture than is most usual. It is also to be observed, that in Jessett, though the external congestion of the brain was very great, the cineritious substance was not softened and the mental faculties were unimpaired, two circumstances which are, in all probability, closely connected with each other.

## CASE XX.

*Probably extensive Effusion, as in the preceding Case.*

JANUARY 27, 1829, I first saw the sister of the subject of the last Case, a child two years and three months old, who was stout and fleshy till about three months before, enjoying excellent health, but was observed to be backward; she was scarcely able to walk alone, and could not speak. The head is rather peculiar in its form, being very large at the occiput; and the mother has observed of this, as of the other child, that the feet are small for its age, appearing rather to diminish than increase. The child has cut all its front teeth and part of its double teeth, but is now cutting some of the remainder: bowels always perfectly regular.

For the last month the child has been falling off from its appetite and its usual ways, seeking its mother's lap, and fretful, with restless nights, and has gone very much back in walking. A fortnight ago the mother was alarmed by its appearance, the eyes acquiring rather suddenly a glassy look, but she was not aware of its having a decided fit; still there was something about the child which led her to seek for medical aid. From that time the disease has been very decidedly shown; and at present the features are contracted; the lips dry: the child has entirely lost the power of standing; sits, or rather lies, in its mother's lap, with the head drawn very much backward, the occiput resting between the shoulders; it is constantly moaning and complaining, and

occasionally stretching out its legs with a kind of spasmodic action; the arms are half bent; the hands closed, and although they yield on being opened, yet they are obviously under the influence of unnatural and spasmodic contraction. The pupils act, and the eyes follow a moving object, plainly showing that the child can see; it is stated that on one occasion vision appeared to be lost; she often refuses food, and takes very little sustenance: pulse 120, weak.

Leeches have been applied to the temples; the head shaved, and kept cold with wash: the bowels are in a very relaxed state from medicine.

I saw the child again June 4th: she had been in the country, and had continued very much in the state in which I saw her in January, varying, however, on different days. At present she lies constantly in her mother's lap, and gets fretful and passionate if not carried about. Her head hangs heavily, and there is scarcely any power in the neck; her hands and feet are sometimes stretched out forcibly, sometimes contracted; she is occasionally thrown into one stiff straight line, but to-day is unusually free from spasm; still, however, the right foot is stiff and the left hand contracted. She generally wakes about five o'clock in the morning, and is then very passionate, appearing to be thrown into spasmodic fits; she never sleeps during the day for a moment; takes some notice, but is not the least capable of amusement; deglutition is very difficult, and requires that the food should be put far back into the fauces. Pupils act well, and eyes follow; she does not seem deaf, but cannot speak a word, or lift any thing to her mouth, or put a foot to the ground; bowels generally confined without medicine; urine frequently passed in bed, of a foetid and strong smell; occasionally she screams, but to-day only utters plaintive and querulous sounds. In face she certainly looks better; features less contracted than when I last saw her; tongue clean and moist. She has cut three teeth in the early part of her illness, and has still three or four to come, but they do not seem coming forward.

Oct. 9th.—I saw this little girl again: she had cut all her teeth except one; her general condition was very little altered, though on the whole the disease had increased; her countenance was vacant; she appeared to see, and certainly to hear; she was constantly in her mother's arms, her head generally thrown back; her legs were often forcibly extended, and so rigid that I could not bend them; in a few moments, however, they became flaccid, and admitted of being bent; the hands and arms were contracted; and from time to time I observed her eyes fixed, like those of a child in convulsions.

## CASE XXI.

*Effusion into the Ventricles of the Brain and under the Arachnoid, with Disease of the Pons Varolii, and unusual firmness of the Spinal Cord.*

MARY JESSETT, aged  $6\frac{1}{2}$  years, was admitted into Guy's Hospital, under my care, December 10th, 1828.—She was a delicate-looking little girl, with a fair skin, and was reported to have enjoyed good health till about three months before her admission,



when she was observed to squint; her head was generally drawn towards the right side, and she appeared gradually to lose the power of her legs, particularly her right leg, leaning toward that side; but still she was able to walk without assistance till about a month ago, when she became decidedly worse, and lost the power of articulating distinctly; her friends, however, are not aware that this change was the consequence of any fit or sudden seizure.

When she came to the Hospital she was unable to stand, and was carried in her mother's arms; she was perfectly sensible, her hearing unimpaired, and her sight good, although, as she squinted very much, it is probable this occasioned some indistinctness; she attempted to give answers to questions immediately, moving her lips and uttering a low whisper, but with difficulty making any more distinct articulate sound: when very attentively questioned, she denied having any pain whatever; she seemed unable to make the necessary effort for the expulsion of the urine and fæces, and would sometimes remain two or three days without passing either the one or the other; her right arm and leg, though not absolutely paralytic, were embarrassed and stiff in all their movements; the head inclined to the right side; she had considerable difficulty in swallowing, but protruded her tongue pretty well; there was some quickness and sharpness about her pulse, and frequent flushing of the face.

Very little change was observed to take place for many days. She lay quite quiet, without moving the least, in a passive state, but perfectly intelligent; at different times the difficulty of swallowing was greater than at others; and sometimes for a day or two the stools and urine passed more regularly; her nights were tranquil, but when she slept she never closed the left eye, nor was she able to do so, and when she attempted it, the ball was half drawn up beneath the upper lid. The left side of the face seemed more affected than the right, the cheek more flaccid, and the expression more lost; the respiration was hurried, and the pulse quick, generally above 100, often 120.

With regard to the limbs, their morbid condition appeared constantly to increase; the right arm and leg became gradually stiff as well as confined in their power, the arm was frequently extended quite straight by the side, and it was not in the power of the patient to bend it; at other times, however, it would allow of being bent by the nurse, and would then seem to get within the limits of voluntary motion; sometimes it lay half bent over her body, and the hand contracted pretty firmly: with regard to the right leg, that was extended still more completely, without the power of volition; it was always found stretched quite straight, the foot in a line with the leg, bent a little inwards; from this position it could only be moved by external force, but when the knee was once bent, there was to the last a feeble power of voluntary motion. The left hand was always cold, and gradually became more and more weak and constrained in its actions: the left leg also was frequently in the same rigid state as the right; but neither the upper nor the lower extremity on this side was ever so completely affected as on the right. As the disease advanced, she was unable to close completely the right eye also; the difficulty of respiration increased, and the countenance frequently assumed a purplish redness; the deglutition was for the last few days

almost completely obstructed, and she sank gradually, with the appearance of being suffocated from inability to bring away the tough mucus which embarrassed the fauces. Within the last few hours the stiffness of the limbs evidently relaxed a little. She died on the 9th of February.

From the moment I saw this child I feared the impossibility of affording any effectual aid. I thought it probable that a tumour was formed at the basis of the brain, and that serum was effused; and, having Case XIX. in my mind, I anticipated, from the stiffness of the limbs, the probability that either the brain and spinal cord would be in a state of hardness, the cineritious substance soft, or that fluid would be accumulated externally to the brain. Under this impression I told the students around me how slender was the hope I entertained; but it appeared that the only chance was by attempting to promote absorption of fluid, and at the same time to support, if possible, the strength of the patient. As deglutition was so difficult, I ordered a scruple of the mercurial ointment to be rubbed upon the abdomen and thighs of the child three times a-day; a blister to be placed on the nape of the neck, which was to be kept open; and a slight bitter infusion, with some occasional laxative, to be administered. Fomentations were employed to facilitate the passage of the urine, and purgative injections were thrown up every second day. The diet to be light and nutritious. At the end of nearly three weeks no mercurial effect was produced; and I afterwards tried divided doses of calomel with soda, when the gums becoming very slightly affected, and no good result appearing, I was afraid to push that remedy further lest ptyalism should come on. The only remedy which appeared to me to give even temporary relief was the blister to the nape of the neck, which I repeated three or four times, when the former one had healed up.

#### SECTIO CADAVERIS.

The skull was of a peculiar square form, large at the posterior part; the ossification perfect. The dura mater was tense, evidently betraying that a fluid was effused beneath; it was not, however, peculiarly vascular. On raising it, the most striking appearance of congestion came into view. A layer of fluid covered the whole surface beneath the arachnoid; and the veins which ran towards the longitudinal sinus were some of them as large as the larger superficial veins about the wrist. This was more obvious towards the back part than towards the front; in both, however, it was remark-



able: and the convolutions were covered with many of the finer ramifications, bearing rather lighter, but still apparently venous, blood. On drawing the two hemispheres from each other the adhesion was greater than usual, and the corpus callosum came in sight, evidently raised by the effused fluid in the ventricles. The central part of the brain showed numerous points of blood. The ventricles were then opened, and were found to contain at least four ounces of pellucid fluid, so that every part was distended to the utmost.

On turning out the brain to see the basis, it became obvious that the tuber annulare was diseased. It was large and swollen, showing little sign of its original structure: it formed a curious mass, apparently lobulated, and larger on the right than on the left side; the 4th, 5th, 6th and 7th nerves were all importantly implicated in the mischief. (Plate II. fig. 2.) Cutting perpendicularly into this tumour a little to the left of the middle line, it was found to consist of a peculiar gelatinous, somewhat translucent substance, with bands or fibres of whiter matter running through it, for the most part longitudinally, as if the natural texture had been separated by an infiltration between the fibres. The infundibulum looked like a transparent bladder, of the size of a horse-bean. The spine was most carefully examined: it was remarkably firm throughout, almost like cartilage; in other respects natural in appearance: two or three drachms of fluid escaped when the theca was opened. The lungs, heart, liver, spleen, and kidneys, were all healthy. The mesenteric glands enlarged to the size of small broad-beans; and the intestines contracted, and containing no scybala, and little feculent matter: the bladder rather distended with urine.

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Comparing this case with Case XIX, with a view of forming an opinion as to the cause of that peculiar spasmodic extension of the limbs which was observed most particularly in Case XIX, but likewise very remarkably in the present case, we find three circumstances in the post mortem appearances which bring them into relation with each other,—the effusion of serum, the hardness of certain portions of the medullary substance, and the derangement which must have been produced in certain parts of the cerebellum from pressure in one case, and from disease in the other. It is a source of regret that we did not pursue our investigation in the former case through the tract of the spinal canal: but there is great reason to believe that the alteration in the texture of the medullary matter,

which continued in the upper part of the spinal cord as low down as we had an opportunity of examining it, existed likewise through the remainder of its substance; and it appears probable that this condition of the cord was chiefly instrumental in producing the peculiar state of the parts depending on the spinal nerves for their voluntary motion and sensation. The effusion of fluid both into the cavities and upon the surface of the brain occurs so frequently, without producing such peculiar symptoms, that it must lead us to hesitate in fixing on this as the cause of the rigidity of the limbs, though certainly in both these cases an unusual quantity of the serum was found external to the brain; and this may probably, connected as it was with fluid within the theca of the spine, have been productive of unusual symptoms.

## CASE XXII.

*Great Irritation, probably Inflammation of the Brain connected with Teething, attended by Convulsion, continued Spasm, and many of the symptoms of Hydrocephalus.*

MARCH 27, 1829.—H. F., aged eighteen months, has for the last week been suffering from irritation produced by teething, as evinced by frequent fits of crying, irregular bowels, and other symptoms, for which calomel and rhubarb purges have been prescribed, and the gums freely scarified. To-day the infant manifests slight symptoms of headache, want of appetite, much disposition to sleep, with furred tongue, and quick pulse. To take two grains of Calomel and five of Rhubarb immediately; to go into a warm bath, and drink barley-water merely.

28th. Great drowsiness, crying constantly when disturbed; bowels opened three or four times; first motions black and offensive.

Applicentur Hirudines ij temporibus.

The gums were lanced, as three or four teeth were just through, and the gums were slightly inflamed.

29th. The leech-bites bled freely for three hours, when the child looking blanched and faint the orifices were plugged. The appearance of the infant is not better; stupor continues; pupils not readily impressed by the stimulus of light; stools of an unhealthy character, green and mucous.

R Hydrarg. Submur. gr. ℥s, Pulver. Antimon. gr. jss; Fiat Pulvis quarta quaque hora sumendus.

30th. But little alteration; right pupil slightly dilated, but is acted upon by a strong light; apparently much headache: the Calomel produced green mucous stools; pulse 130.

Applicentur Hirudines ij temporibus.

R Hydr. Submur. gr. iij, Sodæ Subcarb. gr. xv, Pulveris Cretæ comp. gr. xxx;

Fiat Pulveres sex, quorum sumat unum quarta quaque hora.

Applicentur Emplastra Lyttæ pone aures.

31st. Comatose state continues; bowels not relieved since yesterday: child when roused from sleep very uneasy, moaning and crying as if in pain. Leech-bites bled for two hours; when the child becoming faint, the hæmorrhage was checked. The blisters produced but slight vesication.

Habeat Haust. Sennæ cum Pulvere Rhei ad sedes. Augeatur Cal. ad gr. j sing. dosibus. Emp. Lyttæ nuchæ. To place the feet in warm water, and to have beef tea.

April 1st. Bowels moved three or four times by the senna; stools offensive, green and mucous, the last more yellow. The blister kept on six hours, to the production of vesicles over the whole surface which it covered. Child cries constantly when awake; pupils contract.

R Hydrarg. Submur. gr. viij,

Antimon. Tartar. gr. j,

Pulveris Cretæ comp. ʒjss,

Sodæ Subcarb. ʒs; Fiat Pulveres octo. Sumat unum tertia quaque hora.

2nd. Bowels not open; head feels hot. Child restless; not quite so much stupor; gums not affected by the calomel. Applicetur Lotio frigida capiti.

R Pulv. Rhei gr. viij; Hydrarg. Submur. gr. j,

Sodæ Subcarb. gr. v; Pulveris Cretæ comp. gr. x; Fiat Pulveres ij.

3rd. Child rather better. Both powders were given, producing three or four stools somewhat more feculent: head not so hot. The child teased by a cough, which came on last night.—Repetantur Pulveres.

4th. Child much improved, plays with its toys; motions yellow and feculent. The Calomel has not affected the gums.—Repetantur Medicamenta.

5th. After having continued to mend progressively and rapidly for the last two days, it was this morning seized with convulsions: there have been two fits, which have left firm contractions of the hands and feet; cries incessantly, and stares wildly; pupils slightly dilated. Ice was put on the head during the fit. An enema of Mist. Fœtida was injected, and two or three doses of the following Mixture given.

R Aquæ Anethi ʒiv, Magnes. Carb. gr. x, Spirit. Ammoniaë Aromat. ʒx, Syr. Aurant. ʒij.

9 p. m. No amendment: bowels open.

R Hydrargyri Submuriatis gr. vj, Pulv. Cret. comp. ʒj; Fiat Pulveres iv.

Capiat unum tertia quaque hora.

Rep. Mist. et adde Spir. Ammon. Fœtid. ʒxx.

Applic. Emp. Lyttæ inter scapulas. Lotio frigida capiti.

6th. Slight convulsive movements through the night; child tosses its head in all

directions; cries, and stares vacantly. Contractions of hands and feet continue: bowels open; yellow watery stools.

Repetantur Pulveres, et adde Tinct. Opii  $\mathfrak{m}$ j sing. dos. Misturæ quarta quaque hora sumend.

7th. After the second dose of laudanum the child became more quiet, and slept at intervals: still tosses its head: eyes follow each other; but the vacant look remains. Bowels open; stools of a better character; much thirst.

Repet. Pulveres, et adde Infusi Digitalis  $\mathfrak{z}$ j sing. dos. Tinct. Opii.  
The Mixture to be made with Carbonate of Potash instead of Magnesia.

8th. The nurse remarks that the child has made more urine during the last thirty hours: bowels not open since yesterday; feet and legs have been cold for the last six or eight hours: contractions of hands and legs much less rigid; not quite so much tossing of the head.

Haust. Sennæ cum Pulvere Rhei ad sedes.

The Digitalis to be given only with every other dose of the Tincture of Opium. Cold lotion not to be applied to the head too frequently.

9th. The child was very uneasy and restless last night, when the laudanum was increased to two drops, which quantity has since been continued: much urine. To continue the Beef-tea.—Repetantur Medicamenta.

10th. Yesterday evening the child evinced some symptoms of an approaching convulsion, which was prevented apparently by its being immersed in hot water. Does not improve; crying when awake, and putting its hand to the head.

Repetantur Medicamenta. Haust. Sennæ cras mane. Emp. Lyttæ nuchæ si opus fuerit.

11th. Had a good night; bowels opened by senna; stools feculent; still stares occasionally. To take the calomel more frequently, and to apply the blister ordered last night.

12th. Has slept very much, almost the whole time the blister remained on the neck; is very irritable; stares less; evinces much appetite for food; bowels not open; back very sore with blisters; makes much urine; thirst less.

Haust. Sennæ cum Pulvere Rhei statim.

13th. Bowels open; looks languid and weak, yet more natural than it has done throughout; sleeps soundly and tranquilly; does not appear to suffer from head-ache. To take the laudanum every six hours; and as there is no effect from the calomel on the gums, to continue that also.

15th. Much better; great craving for food; laudanum to be given only every night.

Repetantur Pulveres.

18th. Appetite inordinate; child very irritable and cross; the sore from the blister looks red and painful; bowels regular.

A mild ointment to be applied to the neck.

R Infusi Cascariillæ et Infusi Aurant. comp. partes æquales. Capiat Coch. j ter die.  
Cal. gr. fs. bis die.—Meat and pudding.

22nd. Much improved; gums not affected; sore from the blister nearly healed; appetite continues very great.

May 1st. Is getting fat; appetite more regular; takes the tonic occasionally; removed into the country.

I attended this child in conjunction with Mr. Kruger, and I have stated the case in his words.

I saw the child again in the middle of June, running about, apparently in perfect health, except that the bowels required a little regulation.

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In this case the symptoms of Hydrocephalus appeared well marked; but the circumstance of their being connected with the period of dentition formed a very important feature in the history, and complicated in some degree the result. The impression on our minds on the 6th of April was of the most unfavourable kind. He moaned and screamed incessantly; his pupils were becoming dilated; he had suffered severe convulsions; the most rigid permanent contraction of the hands and feet had continued for twenty-four hours. And when I first proposed giving the laudanum, we agreed that we could scarcely make the case more hopeless by any treatment we could adopt: it was therefore with the greatest satisfaction that we saw the symptoms from that time abate; and with the fullest confidence that the improvement was owing to the influence of the laudanum which we endeavoured to keep up, adopting as our guide the effects produced rather than prescribing any specific quantity, or any fixed time for its administration. From the 6th to the 9th a drop was taken at least every four hours; after which it was increased to two drops, which was repeated every four hours till the 13th, when the periods were lengthened to six hours; and on the 15th it was given at night only. I should be sorry to ascribe more than the due share of the recovery to the laudanum, seeing that other remedies were not neglected when this was adopted: but it was impossible not to perceive that the malady first assumed a more favourable aspect shortly after the opiate plan was brought into effect, and the cure was completed under the same plan of treatment. Some of the circumstances might authorize a belief that inanition, according to the views of Dr. Gooch, had some share in the production of the symptoms, and certainly the necessity of supporting the strength struck me forcibly on the 31st, after the exhaustion caused by the second application of leeches.

## CASE XXIII.

*Effusion into the Ventricles from Inflammation of the Membranes.*

———, aged 11 years, was admitted into Lydia Ward, December 14th, 1825. The only history we could obtain was, that she had been ill for a fortnight: she was in a low emaciated state, covered with vermin; she was sensible enough to put out her tongue when asked, and obviously knew those around her; she made no complaint but of her head, and was frequently observed to moan, and awoke in the night suddenly, screaming; there was some heat in the head, but no suffusion of the eye nor obvious increased action of the temporal arteries; her pulse was feeble, and her legs generally drawn up towards her body.

Some leeches were applied to her temples: her head was shaved and kept cool by evaporating lotions; and two grains of calomel administered every second hour. The following day a blister was placed on the nape of her neck; she was purged, and sinapisms applied to her feet: afterwards, in addition to the calomel which was persisted in, camphorated mercurial ointment was rubbed into the abdomen; blisters were twice repeated behind the ears; calomel and scammony, senna, and injections, were also given to promote the action of her bowels. She gradually became less sensible; the muscles of the face were slightly convulsed; the splincter of the lips closely contracted; and she died on the 7th day after admission.

## SECTIO CADAVERIS.

On first raising the dura mater, it was obvious that the convolutions were flattened by internal effusion; and accordingly on opening the ventricles they were found much distended with a perfectly limpid fluid, in quantity about two ounces; there was no appearance of peculiar vascularity in the substance of the brain, but the arachnoid was slightly vascular. The intestines were much contracted, and two or three portions of the ilium, each about two inches in length, were quite abruptly distended, and deeply tinged with bile, looking almost like the gall-bladder itself; and in one place it appeared as if the mucous membrane and the valvulæ conniventes, for the space of an inch and a half, had actually been softened and eroded. The colon contained some green fæces; the mesenteric glands were enlarged to the size of almonds; the other organs were healthy.

In this case the chief circumstance which struck my attention was the

state of the small intestines, which seemed to indicate plainly that the calomel had acted as a source of great irritation, and had in all probability added in some degree to the sufferings of the patient. All the symptoms during life pointed to the membranes of the brain as the seat of disease; but some of the symptoms of hydrocephalus were imperfectly marked.

#### CASE XXIV.

*Effusion of Serum into the Ventricles with Coagula, formed during life, in the Veins and Sinuses of the Brain.*

JOHN STUVE, aged 20 months, of lively and intelligent disposition, but always remarked to have a trick of striking his head forcibly against objects and people, or, as his relations say, of "butting with his head;" so that they often thought he would hurt himself.—On the 23rd of April 1828, having for some days had slight cough, but having been during the whole day in apparently higher spirits than usual, he fell asleep in his mother's arms, and awoke suddenly, screaming dreadfully; appearing to suffer great pain in his head. Four leeches were applied to the temples, and calomel and jalap exhibited; the chief symptoms then being rolling of the head, great fretfulness, frequent carrying of the hand to the head, and complaining of a feeling of pins pricking his forehead. I was called to the child by Mr. Mountford, who was in attendance, about five o'clock in the afternoon of May the 9th, at which time leeches had again been applied to the temples, and blisters behind the ears. Calomel and jalap had been given, and an almond mixture with squills; a blister had likewise been applied to his chest, with reference to the cough. The child was very pallid and fretful; pulse 120; he was constantly throwing his head about, but never attempted to raise it from the pillow. There was no strabismus, and the pupils acted to light; no convulsions; the head felt hot. The friends expressed themselves quite certain that the child had met with no accidental blow. It was agreed at this visit that there was too much exhaustion to allow at present of further depletion, but as the teeth seemed to be causing irritation, the gums were ordered to be freely lanced; cold wash to be applied to the head; the bowels to be well fomented; ipecacuanha to be substituted for squill in the mixture, and a grain of calomel with three grains of magnesia to be taken every fourth hour.

10th. The child was in most respects as before; but made more complaint, carrying his hand constantly to the head, but more particularly when asked to point out the seat of pain; bowels much opened; stools green and curdled. The teeth were distinctly felt by the lancet.



Applicentur Hirudines iij temporibus.  
 R Hydrarg. Submuriat. gr. fs,  
 Sodæ Subcarbonat. gr. ij,  
 Pulv. Cretæ Comp. gr. v;  
 Fiat pulvis tertia quaque hora sumendus.

*Evening.* Was observed to squint occasionally during the day, in other respects had remained as before.—The feet to be put into hot water in which mustard meal has been diffused, and a blister to be applied to the nape of the neck.

11th. Suffered very severe convulsions in the night; bowels opened several times; cough very troublesome; pulse from 120 to 130, weak but sharp.

Applicentur Hirudines ij sterno.  
 Infricetur Unguent. Hydrarg. ʒj quarta quaque hora.  
 R Aquæ Anethi ʒfs,  
 Spirit. Ammon. fœtid. m iij,  
 Magnesiæ Subcarb. gr. ij;  
 Fiat haustus ter die sumendus.

12th. Much torpor, with occasional convulsions; the face seems contracted; the lips dry; the mixture gives some relief; and the fomentation appears always to allay spasm and irritation; breathing hurried.

Infricetur Unguent. tertia quaque hora.  
 Applicentur Emplastra Cantharidis pone aures.

13th. Greatly convulsed in the night; in constant convulsions during the time of our visit; the eyes drawn to the corners, and the hands stiff; bowels tolerably open; all the blisters have risen.

Repetatur Unguentum tertia quaque hora,  
 et Repetantur medicamenta.

14th. Night less disturbed by convulsions; does not seem conscious; and the right arm almost motionless and powerless, except that the fingers are convulsively clasped to and fro; appears to see objects, and is sensible to pressure on various parts of the abdomen.

Repetantur medicamenta.

*Evening.* Looks composed but very pallid; has passed the day chiefly in a state of torpor, yet once or twice has expressed pain when the ointment was rubbed in; he swallowed some milk-and-water while we were present; the feet are stiffly extended and turned inwards; the left arm is pushed rather forcibly from the side; he frequently makes a clicking noise with his lips; the pupils rather contracted, but not insensible to light; pulse very quick; three moderate motions of a greenish colour.

Habeat Ol. Ricini ʒij cras mane; et Repetantur alia.

To take as much nourishment as can be conveniently got down.



15th. Passed a tranquil night, inclined to sleep, yet undoubtedly conscious of things around him, as he was much distressed when purposely scolded by his aunt, to see if she could in that way induce him to take some medicine, expressing his distress in a way so natural and so like his usual manner as to convince his friends that he was sensible; he had suffered no convulsions during the whole night, and he obviously noticed us. Two or three moderate stools, rather green; feet still spasmodically extended; countenance more natural; skin hot; pulse about 120; takes mild nourishment when offered.

Repetantur infrictio, mistura, fots, et pediluvium.

*Evening.* Two slight fits about six o'clock; feet extended; one small stool; he has said one or two words, supposed to be sensible in the day; cough much stronger and more natural, without being more oppressive; respiration hurried.

Continuantur infrictio, fots, et mistura; et Habeat Olei Ricini ʒj.

16th. Tolerably tranquil night, but the left arm and hand almost constantly convulsed (before, the right hand was the one affected); face not convulsed; he is perfectly conscious, and his appearance tolerably natural; cough frequent and strong; pupils act well; four or five stools from the castor oil, inclined to be curdled and grow green.

Hydrarg. cum Cret. gr. ij.

Pulv. Tragac. Comp. gr. iij statim.

*Evening.* Bowels well opened; he has not said a word to denote consciousness, but expressed displeasure at the friction; has taken a good deal of nourishment; pulse quick and weak.

Foveatur abdomen; Repetantur medicamenta et pediluvium.

17th. No severe convulsions, but much working of the face; no screaming; pulse 120, weak; is apparently approaching to a state of coma; respiration 60.

Emplast. Cantharidis occipiti.

*Evening.* Two or three tolerable stools; has lain nearly senseless all the day, but swallowed his medicine very well two hours ago; his pupils act, though badly, and are contracted; he has had some most severe convulsions during the day, grinding his teeth with violence; now much sunk; has taken little nourishment; his feet are relaxed, apparently from a state of sinking; he swallowed some fluid.

℞ Aquæ Anethi ʒss,

Spir. Ammon. fœtid. ℥iij,

Vini Ferri ℥x; fiat Haustus secunda quaque hora sumendus.

The child died about 11 o'clock; that is, two hours after the visit.

## SECTIO CADAVERIS.

On taking off the scalp, the bone had a transparent look as belongs to the age, and a rather dark colour. The dura mater attached pretty firmly to the skull, and when first seen, the bone being removed, looked distended as if it had been forcibly pressed upwards. On raising the dura mater, all the larger veins on the surface of both hemispheres running into the longitudinal sinus were seen round and hard, quite filled with yellow-coloured coagulum as if injected with wax, while the whole vertex was covered under the membranes with dark extravasated blood; this was of a deep purple at the summit, and became lighter and more broken further down the sides; so that an incision made all round, rather above the cavity of the ventricles, took off nearly the whole extravasated blood. (Plate V.) The coagulum filled the veins through one or two subdivisions in some parts; and on carefully opening the longitudinal sinus the whole was full of a coagulum taking the exact form of the sinus, and becoming firmer the more it was traced backwards: this coagulum was almost entirely fibrin, with a little of the red blood in parts and cavities: it was closely attached in some of the mouths of the veins where they entered the sinus; but this was on account of the fibrous structure of the internal surface of the sinus entangling the coagulum.

The general surface of the brain where the ecchymosis had not taken place was so far from being vascular, that it was unusually pale; but those parts of the pia mater which ran between the convolutions near the parts where the veins were obstructed, were red and apparently vascular. On making a clean horizontal cut through the two hemispheres, a little above the top of the ventricles, a number of small round dark red spots, more venous than arterial in colour, were seen thickly distributed in patches; these were chiefly collected in a close body round the inside of the cineritious substance at those parts where the pia mater was most vascular; and the cineritious matter itself was of a darker colour than usual. In one part on the outside of the anterior lobe of the right side the brain was completely softened, so that on pressing the finger upon it, it broke down easily, and was immediately excavated, leaving the surrounding part, in which were no red spots, obviously much more firm, and indeed natural, in texture and appearance. (Plate VI. Fig. 1.)

On examining the brain with a high magnifying lens, it was evident that the round specks were small coagula, and were not contained in vessels; for, in whatever way divided, they always presented the same appearance: nor could any thing further be discovered with a microscope. The vessels from which these little clots of blood had escaped could not even be discovered. (Plate VI. Fig. 2.) The ventricles were distended with several drams of clear fluid, and the septum lucidum and commissura mollis were so soft as very easily to break down: the membrane lining the ventricles was perfectly healthy and free from vascularity: the posterior cornua were much distended with watery fluid.

On exposing the base of the brain, the only remarkable circumstance was that it appeared unusually free from vascularity, and white; and this was particularly the case with regard to the cerebellum, the cineritious portion of which was soft as well as pallid. The vessels of the base, the basilar artery, and the circulus Willisii were perfectly healthy: there was near the optic nerves a spot where we perceived about as much puriform matter as would form one or two drops, but we did not discover its origin. In the basis was above an ounce and a half of serum; but some of this had probably found its way during the examination from the ventricles.

The lung on the right side was rather too firm, though still crepitant, and the lower edges were somewhat emphysematous. The left lung presented throughout every part a most complete specimen of pneumonic hepatization, of a pinkish or gray red colour: it was harder than liver, altogether impervious to air, and cut firm with a slightly granulated texture. The large bifurcation of the trachea, when the lung was squeezed, filled with puriform fluid. The pleura adhered firmly in the lower part to the ribs, and was, when torn away, found to be covered with a rough and completely scabrous false membrane.

The liver rather pale, with a few superficial yellow patches. The gall bladder contained but little bile.

Intestines healthy, except from unusual contraction of several parts, which were small as a quill and then suddenly distended; the mesenteric glands rather generally but not greatly enlarged, of the size of beans and lupin seeds.

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In this case, it appears from the peculiarity of the child's habits with

regard to the head when in his ordinary health, that he must often have experienced some uncomfortable sensation, which in all probability arose from a state of congestion in the vessels. The commencement of that illness which led to his death was, as far as we can collect, an attack of pneumonia,—probably not very urgent in its symptoms,—as, although he coughed, this had continued several days without exciting observation so as to lead the parents to procure medical advice. And it was only at the period when evident reference of disease to the head took place, on the child suddenly awaking from sleep, that assistance was procured. The means then used applied to the condition both of the chest and head.

When I first saw the child, above a fortnight after the urgent symptoms had occurred, the head was decidedly the seat of much threatened injury; and from the constant reference of pain to that part, from which the child never deviated, it is probable that the disease had already advanced far at that time. During the subsequent progress of the disease the pneumonic symptoms called for occasional relief; but the head was the more constant seat of pain and uneasiness; and the strabismus, convulsion, and torpor, left no room to doubt the seat of the affection. Many of the symptoms more generally attending hydrocephalus were absent; sickness was only occasional and seldom, and referable always to something taken into the stomach; there was no screaming; less torpor of bowels; and the oppression to the last less apoplectic and complete than generally seen in hydrocephalus, when the disease terminates in that way.

The evidence, as derived from dissection, of true inflammatory action in the arachnoid and pia mater is very small; indeed I doubt whether inflammation existed in that part, but am rather induced to ascribe the cerebral mischief to congestion, probably favoured by the entire obliteration of the lung on one side, in connection with an habitual peculiarity in the organization of the venous system of the brain.

This case seems to throw some light on the congestive nature of some cases of softening of the brain, as well as of some cases of effusion into the ventricles.

The appearance presented by the brain was not at all unlike what I have seen in a much slighter degree in some cases of death from concussion of the brain without fracture, when mechanical force from without has effected nearly what internal pressure from distended vessels seemed here to have produced.

It becomes a very important question to what extent depletion is allowable in a case of this kind. My own opinion is, that if any error was committed in the treatment, it was rather in having depleted too much than the contrary; and although I know that there are many who would find it difficult to imagine that fourteen leeches applied in the first fourteen days of this disease could have been instrumental in inducing or confirming the mischief of the head; yet, as those which were first applied did not overcome the serious inflammatory mischief of the lungs, and the circulation afterwards became so weak and imperfect, it is by no means improbable that the state of congestion which existed in the head from the 23rd of April, the period of the first cerebral symptoms, became increased by each successive measure which was calculated in any way to lower the powers of life. This enfeebled condition it was which probably allowed coagulation to take place in the veins and sinuses; and that this actually occurred some time previously to death we have every reason to infer from the ecchymosis and injury observable both on the surface and in the substance of the brain.

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It has occurred to me while these cases have been passing through the press, to see two others curiously illustrative of the tendency to coagulate which the blood in the veins acquires when the system is under the influence of different debilitating causes; and these, together with one or two others having a similar bearing, I shall detail, as being peculiarly and practically interesting in the present inquiry, serving to place in a somewhat new light the value of the views entertained by Dr. Gooch, and to point out the probable disadvantages of persisting in the course of depletion longer than is necessary to overcome manifest increased action.

#### CASE XXV.

##### *Coagulation of Fibrin in the Veins, during life, in a debilitated Female.*

ELIZABETH LARNER, aged 17, had been long labouring under anasarca and ascites, with a pulse constantly accelerated and jerking in its beat, ascribed to disease of the heart subsequent to rheumatism, and to disease of the liver. After long and varied suffering, in which she was excessively reduced, and was in her appearance pallid and exsanguine, she became the subject of pain and tenderness above the left clavicle,

where slight swelling was soon perceived, and this in a day or two distinctly to be traced in the direction of the jugular and subclavian veins, which might themselves be felt hardened like cords. The whole left arm became edematous; her weakness and irritability increased; her pulse became more rapid; and she sunk in about ten days from the first discovery of these symptoms.

#### SECTIO CADAVERIS.

The sternum adhered very closely to the pericardium; the two surfaces of the pericardium adhered generally by firm and close adhesions; the heart was large, chiefly owing to the increase of the left ventricle. The edge of the tricuspid valve was thickened, but still the auriculo-ventricular opening was very large; the blood in the cavities was but imperfectly coagulated, but the clots extended into the principal vessels; the pulmonary artery and its valves healthy. The left auricle rather thickened; both curtains of the mitral valve rather thick but not ossified, one of them was a little contracted; some minute and soft fibrinous vegetations were attached to the edges of both curtains; the opening of the valve was very large. Aortic semilunar valves thickened and almost cartilaginous at their convex part, so that each valve formed a bulging cup. The left jugular and subclavian veins were plugged up by a firm coagulum terminating abruptly just as they entered the cava; the coagulum was of a yellow white, with isolated portions soft and grumous; the blood was partly coagulated and partly fluid in the axillary and brachial veins and their branches, distending many of the superficial veins; the jugular above the fibrinous mass was filled with dark blood not very firmly coagulated; the coats of the vessels were healthy and smooth. The cellular membrane around the veins firm and semi-cartilaginous, and some of the axillary glands enlarged. The pleura adhered to the lungs, but not so generally as to prevent considerable effusion of serum; there was some recent inflammation on the right side and lower part of the lung, and a small pulmonary apoplexy. In the abdomen were found about four pints of straw-coloured serum; and numerous old adhesions of the diaphragm to surrounding viscera. Liver contracted and firm, with an irregularly indented surface. On the uterus was a small attached cyst. Kidneys large and healthy.

## CASE XXVI.

*Coagulation of Fibrin in the Veins, during life, in a debilitated Female.*

ELIZABETH MUCKLOW, aged 22, was admitted into Guy's Hospital in the month of December, under the care of Dr. Addison, eleven weeks after parturition, during which she had suffered from excessive hæmorrhage.—She was pale and bloated, with a sharp jerking pulse, sometimes rising to 140 beats in the minute; she complained of some pain and swelling above the left clavicle, where the hardened veins were distinctly to be traced as in the last case; the arm became excessively œdematous; and she had not been in the Hospital above a week when she died almost suddenly; for though she had been from the beginning much oppressed, she had appeared relieved, and had expressed herself very cheerfully within an hour or two of her death.

## SECTIO CADAVERIS.

On examination a firm white fibrinous coagulum, almost as hard as cartilage in some parts, was found plugging up the subclavian vein, and this extended two or three inches up the jugulars; it became thin and more slightly attached to the inside of the vein quite at its entrance into the cava, where it ceased. All the valves of the heart had upon their edges small fleshy deposits of fibrin from the blood, forming fringes of vegetation attached with considerable firmness, so as to allow of being handled pretty roughly without being detached.

The right auricle of the heart was distended with blood; some fluid in the pericardium; a considerable quantity of serum in the cavities of the chest.

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It is to be observed, that in both of these cases, as in that which I bring them forward to illustrate, the pulse was unusually frequent and jerking, the pulse of irritability and of excited heart, but not the pulse of active inflammation;—in all the cases the powers of life were greatly reduced, and in all, the blood had evidently coagulated in the veins during life.

The two following cases are almost equally illustrative of the danger to be feared from exhaustion in disease; but being somewhat more complicated, would of themselves leave a less convincing impression on the mind; while coupled with the rest, they afford an important corroboration of the practical deductions to which they tend.



## CASE XXVII.

*Coagulation of Fibrin in the Veins, during life, in a debilitated Female, with Gangrene of the Spleen.*

ANNA HOWELL, aged 21, was admitted, under my care, into Guy's Hospital, January 1st, 1829.—She was in a state of the greatest debility, pallid, exsanguine, looking like wax, and greatly emaciated. She said she suffered no pain whatsoever; her pulse 132, sharp; the action of the heart was unusually throbbing, corresponding in all respects with the pulse, and not irregular: she had no cough, and lay both upon her back and her right side, but she could not lie on the left side. Tongue pale, with a little brownish fur, and inclining to dryness.

On inquiring into the history of the case, it appeared that about five weeks before, having exerted herself much in a long walk, she was seized in the middle of the night with great palpitation of the heart, a pain in the left side, and a slight hacking cough: at that period she was unable to lie on her side, but lay always on her back: she had at the same time pain and tenderness over the abdomen. She was very actively treated, was bled five times within forty-eight hours of the attack; had 36 leeches applied to the abdomen, and three blisters; and, as her bowels were confined, she was obliged to take much purgative medicine.

It was difficult to discover from this imperfect account what had been the original seat of the inflammatory mischief; but referred as it was to the upper part of the left side, and accompanied, as we were told, by palpitation of the heart at its very commencement, and ascribed to excessive exertion, I thought it very probable that the pericardium had been the part primarily affected; the tenderness, however, of which she spoke as having originally existed, led to a belief that the peritoneum had also suffered. I suspected that she was still labouring under the effects of pericarditis, and that probably more or less of fibrin had been effused: as far, however, as I could perceive of her present state, nothing remained but debility, which I ascribed partly to the treatment which had been found necessary to subdue inflammation, and partly to the effects of that inflammation. I determined as far as possible to support the strength, and recommended a trial of the compound steel mixture, beginning first with doses of half an ounce; and she was ordered to take mild nutritious food. The bowels afterwards becoming a little relaxed, I tried to regulate them by the Hydr. cum Cret. gr. iij, and Pulv. Ipec. comp. gr. iij, given at bed-time.

On the 7th, a teasing cough disturbed her much, and I was obliged to give up the steel mixture and have recourse to ipecacuanha and conium; and a saline, with a few drops of the compound tincture of camphor; and again, after a few days, made trial of a milder tonic, in the form of compound infusion of gentian with the compound tincture of camphor.

In some respects she improved under this treatment; her tongue became clean, and her appetite increased; but her legs, which had begun to swell within a day or two after her admission, became very large and œdematous, more particularly the right; the thigh and leg were of an enormous size, and she complained of much pain; diarrhœa likewise came on by degrees, and was during the last few days evidently reducing her strength. On the 20th, the right leg and thigh were observed to have diminished considerably, though still very œdematous, and the superficial veins were remarkably large.

She died on the night of the 23rd.

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We learnt afterwards, that some time ago she had an abscess in her left side, which continued for a considerable time; but we could not exactly understand its nature.

#### SECTIO CADAVERIS.

Great general emaciation; right leg and thigh œdematous to a very considerable degree; left leg and thigh also œdematous, but not so much so as the right.

The lungs were in a perfectly healthy state, but very exsanguine: the only adhesion was on the left side, where the edge of the lung lies upon the pericardium, and this was not very firm or extensive, but decided. The pericardium was perfectly healthy, but contained at least six ounces of a straw-coloured serous fluid, in which were floating a few long shreds of coagulated fibrin quite transparent and not adhering at all to either surface of the pericardium. The heart itself was perfectly healthy.

On laying open the abdomen, the acute margin of the liver was found closely adherent to the stomach where it lies over it, and the liver itself was seen pale and exsanguine. There was no unhealthy appearance brought to view by raising the omentum; on the contrary, the intestines looked perfectly natural, except so far as they were very deficient in blood. The viscera of the pelvis were healthy, except that one of the ovaries presented a vascular body, and one a corpus luteum; so that at this stage of the examination no cause was discoverable but simple debility which could have produced death. On examining a little further, however, we found that the spleen adhered quite firmly to the large extremity of the stomach; and as a little force was used in bringing it into view, it tore from the stomach, which was found in this place to be ulcerated through, though the spleen had filled up the opening: it now appeared that

the spleen was in a state of sphacelus, forming part of a sphacelated mass involving the spleen, the liver, the diaphragm, and the stomach,—all of which were partially destroyed in their substance, and formed a dark brown mass most horribly offensive to the smell as well as in appearance.

The only other evidence of disease was found in the condition of the veins of the lower extremities: a mass of coagulum filled the inferior cava and the iliacs from the part where the vein passes behind the liver down as far as could be traced beneath Poupart's ligament on both sides; and doubtless this might have been followed much lower, but we were not allowed to pursue the investigation further. This coagulum was yellow and laminated, and in one or two parts it appeared as if some change or a kind of suppuration had been going on within it; and here its sides were still more closely than elsewhere attached to the inside of the veins.

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This very interesting case did not altogether correspond with the diagnosis which I had formed. That diagnosis was deduced from the imperfect history of the case, and from the symptoms which presented themselves. We were told that the pain had been situated in the region of the heart; that very free venæsection had been used; but still we found the disturbance of the heart's action continuing, though all inflammatory action had subsided.

There can be little doubt that, in addition to the jerking circulation occasioned by irritation and exhaustion, the contiguity of the parts most formidably diseased had excited a sympathetic action of the heart, and that the effusion which had taken place into the cavity of the pericardium had greatly increased the disturbance of the circulation. I had no doubt that the obliteration of the veins was a circumstance arising from the general want of power, and it had been ascribed to this cause alone as soon as the peculiar swelling of the legs indicated its existence; it became however a question, when the state of the spleen was discovered, whether the condition of that organ might be supposed to exert any peculiar influence on the circulation, rendering it still more weak, or disposing the blood still more readily to coagulate; that it was one cause of preventing the patient from rallying after the loss of blood there can be no doubt. It was interesting to observe the diminution which took place in the right leg as the subcutaneous veins enlarged to make way for the retarded blood.

## CASE XXVIII.

*Coagulation of Fibrin in the Veins, in a Female exhausted by Disease, and affected with Ovarian Tumours.*

MARGARET LOVELL, aged about 28 years, was for several months under my care in Guy's Hospital: she was weak and exsanguine, and scarcely left her bed from the time of her admission; latterly complaining very much of the pains she suffered in both thighs, running down her legs. Ovarian tumours were distinctly to be felt, and she died gradually worn out.

## SECTIO CADAVERIS.

In the highest degree pallid and exsanguine; the legs and thighs swollen with œdema, looking transparent; hands and arms slightly œdematous; a general tendency to œdema in all the cellular membrane of the body; muscles exceedingly flaccid, watery, and of a pale brown colour. A considerable quantity of clear straw-coloured serum effused into all the cavities of the abdomen and chest, except into the pericardium, where there was only a very small quantity, and that of a still paler colour than any of the rest.

Heart unusually small; the left ventricle, however, thick in proportion, and the colour of the muscular fibre much redder than that of any other part of the body. Lungs through greater part perfectly free from all organic lesion; but the right adhering very firmly at the upper angle to the pleura costalis, and at that place was situated, near the surface, a single tubercle of the size of a large marble, softened, and having in one part of it a bony concretion about the size of a large pea: around this tubercle the substance of the lungs was infiltrated with a grey hard matter, which formed a kind of cyst when the softer matter of the tubercle was displaced. The whole substance of both lungs was slightly œdematous; the lining membrane of the trachea almost as white as paper. Liver healthy in size, the investing membrane slightly opaque, and a few fine branny flocculencies upon its surface: when cut into, considerably more blood flowed out than is common, but this might have been owing to the blood being in a rather fluid state. Gall-bladder full of green bile; the ducts, however, pervious. Pancreas healthy. Spleen very firm. Small intestines opaque, contracted almost throughout, though not to the utmost degree, and in some parts showing many tortuous vessels running from the intestines to the mesen-

tery; the intestines were thin in some places, with a blush of pink. In a few patches, particularly near to the colon, the ilium had on its surface small clusters of white tubercles; the small intestines in one part adhered firmly to an ovarian tumour on the right side; the mesenteric glands opposite were enlarged to the size of beans, and some of them had lumps of bony matter in them. The mucous membrane of the intestines not ulcerated, or very slightly so.

The pelvis was completely filled with a mass of diseased ovaries, and their connected parts. The left ovary was most enlarged. One cyst of the size of a large orange, to which the omentum adhered, was seen projecting in the left iliac region; two or three others, smaller, were connected with it, and two or three transparent gelatinous-looking bags, apparently superficial to the ovary, of the size of marbles, were likewise attached; the pressure of this tumour and of the mass of enlarged glands above Poupart's ligament, had produced complete obliteration of the femoral vein, which was firmly plugged up with coagulum of the colour of fibrin within, but of the colour of blood on the outside: this was pretty firmly attached to the sides of the veins; but on being detached the vein was perfectly white, almost beyond what was natural.

The right ovary was in the same state of disease; one cyst passing towards the obturator foramen was in a state of suppuration full of curdly pus; it was extending likewise partly into the fibres of the Psoas muscle; and if it had not actually made its way into the vagina, and partially emptied itself in that way, it was so near to it that on most carefully dissecting it out, a communication was made. All the glands about Poupart's ligament and the lumbar glands were much enlarged; the latter forming a hard mass upon the lumbar and upper sacral vertebræ. One hard oval gland appeared to press particularly on the external cutaneous nerve; the mass of glands running down towards Poupart's ligament made evident pressure on the crural nerve; and the suppurating cyst near the obturator foramen pressed on the sciatic. The pressure of the tumour upon the vein had on this side as well as on the other produced a complete obstruction by a coagulum which extended as far as it was traced, which was nearly to the knee, where the coagulum was still firm and solid, and exactly as on the other side. The Saphena major on each side was likewise, though not plugged up, somewhat obstructed by smaller and less perfect coagula; but in these there was fluid blood. One cyst of the ovary on the

right side pressed on the ureter of that side as it approached the bladder preventing the passage of the urine, so that the whole ureter was much distended, and the pelvis of the kidney was nearly half the size of the kidney itself, which was diminished by this pressure. The left kidney was nearly natural, but two or three small portions of white tubercular substance, not very hard, were discovered in the cortical part.

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In this case, the influence of debility in promoting the coagulation of the blood was much less striking than in those which have gone before, because obvious local pressure existed; but still the general condition of the patient probably assisted in the effect. The excruciating pains suffered during life were sufficiently accounted for by the extensive pressure of the tumours.

In addition to the above cases, I would likewise refer to that of Mary Ann Richardson, page 19 of the former volume of these Reports, where, in a woman worn out by long-continued dropsical disease, the pulmonary artery, the splenic vein, and the vena portæ were all found filled with fibrinous coagula. There is no doubt that these important vessels could not very long have been completely obstructed consistent with life, but to have admitted of the formation of firm fibrinous coagula in any way, argues a most unusual delay in the circulation. The precise time at which coagulation began can no more be ascertained than in the case of Stuve (Case XXIV.), where undeniable evidence is derived from the effects produced upon the brain, that an effort at circulation had been made after a partial or complete obstruction of the veins and sinuses.



## OBSERVATIONS ON THE TREATMENT OF HYDROCEPHALUS.

Reflecting on the circumstance generally connected with the commencement of Hydrocephalus, we shall find that some degree of inflammatory action has usually existed ; and it is upon the readiness with which this is discovered, and the promptness with which it is combated by active depletion and by antiphlogistic remedies, that frequently the only hope of cure can be founded : but it is a point of the highest importance that the practitioner should not allow himself to be entirely governed by this confined view of the disease, and at all events that he should not be led by every trivial symptom to have recourse to the repetition of small bleedings, calculated only to depress the powers of life. Sometimes in the earliest stages, irritation, depending on obvious or hidden causes, exerts a powerful influence ; and still more often, as the disease proceeds, the patient becomes exhausted and worn out, and at such times nourishment will be necessary to sustain life, and the increased irritability of the nervous system will require the administration of sedatives. It is not possible to lay down exact rules respecting the quantity of any sedative remedy which might be required in any particular case. The tincture of opium or the sedative solution, from the ease with which their doses may be regulated and increased, are to be preferred ; and of the former I have seen as much as five drops given three times a day to a child of two years of age, under most urgent circumstances, with the best effect, and followed by perfect reestablishment of health. I should, however, hesitate before I ventured on such a dose ; and would certainly begin with much smaller quantities, increasing them gradually till some apparent effect was produced.

Besides those cases in which inflammation and irritation exist, either alone or combined, there are others in which congestion appears to be the morbid condition leading immediately to the effusion, and this congestion may depend either on some original disproportion in the strength of the arterial and venous circulation, or on some impediment to the return of blood, as that which probably existed in the Case of Jessett (Case XXI.) ; and it becomes a question, if we could ascertain with certainty the existence of such a state, what extent of depletion and what local applications would be beneficial ; where inflammation exists, general and local bleeding and the continued application of cold are indicated ; where great irritation is



evinced, cold may be very useful in allaying it ;—we have at least in favour of this, the obvious benefit derived from cold applied to the head in fever, and its advantageous employment in the delirium of drunkards ;—but where congestion is known to exist, it is very doubtful how far we are justified in the continued application of cold. I should rather recommend its occasional or repeated sudden application, as in cases of hæmorrhage, with a view of producing a contraction of vessels, or what has been called its tonic operation ; for the effect of long-continued cold may be to exhaust the powers of life, and finally rather to increase than diminish congestion ; and even to induce such a state of circulation as would favour the coagulation of the blood in the veins, as in the case of Stuve. Blisters to the nape of the neck are more applicable in this form of the disease ; and if the strength be not exhausted, pretty rapid but limited local depletion by means of cupping may be used.

The employment of mercurials in Hydrocephalus has long and justly been considered of the utmost importance ; but I am persuaded that the mode in which they have been used, and the object which has been proposed by their administration, have both been often erroneous. Calomel has usually been given in frequent doses, with a view of acting upon the liver, and producing repeated green evacuations ; and this by some has been considered the proof that the calomel is acting favourably, whereas by others, when the green stools have appeared, they have been assumed as the proof that more calomel was required to clear away the vitiated bile. The fact seems to be, that such stools are produced by the action of the calomel ; and as far as can be inferred from the symptoms of irritation with which their occurrence is usually accompanied, and from the appearance of the intestines (Plate IV.) of children who have died while calomel was producing this action on the liver and bowels, there is reason to believe that they have been a source of much irritation to the intestinal canal ; for although it is often quite impossible in children during life to ascertain the exact cause of irritation upon which the symptoms depend, yet on dissection we find that the bowels are in an irregular state of contraction, and the masses of green feculent matter are distributed amidst the unequal contractions in such a way as to show plainly that they have been a source of irritation, and not unfrequently numerous portions of the intestines have been found in a state of intus-susception. To those who are acquainted with the influence which irritation of the mucous membrane exerts on the brain in the febrile attacks

even of adults, it will be quite unnecessary to urge the probable effect of such irritation on the delicate nervous system of children in whom the brain is already rendered acutely sensible by disease : and by those who have witnessed the convulsions of children caused by griping, it will also be allowed that irritation of the muscular fibres may exert a powerful influence ; and I shall have hereafter an opportunity of showing that inflammation of the external or peritoneal coat is likewise capable of producing intense cerebral irritation.

In the administration of calomel, then, it is a great object to produce as little irritation as possible. Mercury acts in this disease on different principles : in the commencement it is the most powerful and effectual means we possess of reducing the inflammatory action set up in the membranes of the brain, thus preventing the effusion of serum ; and in the more advanced stages it may assist in producing absorption. It will likewise act on the secretion of the liver, and either by itself or in combination, assist in removing any feculent matter which might prove the casual source of irritation. If the calomel is suspected of irritating the bowels, no more rational proceeding can be adopted than to combine with it an opiate, as we always do in adults when we give it with a view of producing a favourable change in the vascular action of inflamed membranes : it is true that the use of opium in children so tender as those who are frequently the subject of Hydrocephalus is not without its hazard ; but this may be obviated by caution ; and in so fatal and unmanageable a disease something should be risked if a great good is to be hoped. One thing is always to be borne in mind in our treatment of this disease, that, while a due regard to the delicacy of the frame on which we are acting should inculcate prudence in the use of depletion, and caution in the administration of such remedies as may induce excessive irritation ; the recollection of the extraordinary recoveries which all have witnessed, after every rational ground of hope seemed to have vanished, should always prompt us to assiduous perseverance in the use of remedies as long as life remains.

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THE following CASES, which have occurred very lately, belong immediately to the subject of the present section.

### CASE XXIX.

*Arachnitis attacking suddenly, and terminating in Serous Effusion.*

A SAILOR, of middle age and tall stature, had suffered from severe fever while in tropical climates, and was now greatly emaciated, with cough and some expectoration; his appearance was that of a man greatly reduced, but he was able to walk about, and was perfectly sensible, making no complaint of his head.

Nov. 29th. Without any previous intimation, he was observed as he lay in bed to be making a peculiar struggling, and to be muttering incoherently; and he continued in this state the following day, when I saw him: he was perfectly insensible to external objects and sounds, but kept moving about and raising himself partly in his bed, often laying hold of various objects; his eyes fixed but not suffused, and his pupils rather dilated; pulse quick, and rather sharp. In the afternoon and the following day he had many convulsive seizures, in which his limbs, but more particularly his hands, were much contracted, and he still remained perfectly senseless.

Dec. 1st. He lay very much in the same state; pulse full and frequent, and very compressible; was again convulsed, but passed a tranquil night.

2nd. Pulse 132, rather sharp: he was still perfectly unconscious, and while I was with him was drawing the bed-clothes from side to side, then seizing the collar of his shirt and tearing it with violence, while at the same time he uttered long and almost hysteric cries. I was told that at one time he had been supposed to speak to his wife a short coherent sentence, but he was again lost.

3rd. He lies much more quiet; pulse 130, rather sharp; has had much less convulsive action; his eyes are open, and he seems to see and hear, but makes no effort to put out his tongue when told, nor to answer in any way questions put to him.

4th. Had two convulsions during the night, and one to-day; face a little more flushed; pulse 132. He still lies quite unmoved by external objects, and occasionally muttering incoherently, but on the whole he is tranquil.

6th. To-day for the first time he so far understood what was said as to put out his tongue when asked; and he made some reply to questions, but it was not correct, scarcely intelligible: he lay in a state of delirium almost like a patient in fever, calling out sometimes, and using his hands with so much force that, during the night as well as this morning, it was found necessary to employ some restraint; pulse 120, weaker; tongue covered with a dark brown fur; no return of convulsions.

7th. Little alteration, but he seems rather weaker, lying on his back with a senseless stare, and muttering incoherently till asked to put out his tongue, which he can do, but then is immediately lost again; pulse about 120, weaker; tongue brown.

8th. He appears to be sinking ; subsultus at the wrists ; eyes covered with a film.

9th. Still living, covered with a cold perspiration ; sinking into the bed ; totally insensible, with subsultus at the wrists.

10th. Died this morning.

#### SECTIO CADAVERIS.

The dura mater natural without, and of its usual polished appearance within. The arachnoid slightly opake in parts, and having beneath it a small but very perceptible quantity of limpid fluid. The pia mater decidedly vascular. At the basis of the brain the vessels were turgid with coagulated blood, and a considerable effusion of serum had taken place. The ventricles contained much more fluid than natural, but not sufficient to produce a flattening of the convolutions on the surface of the brain : throughout every part of the brain where incisions were made, an unusual number of vascular points appeared, from which fluid blood issued. The lungs were healthy, but in a state of congestion ; and the same might be said of the liver and all the viscera of the abdomen, which presented a leaden grey colour, and contained a great deal of dark blood.

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This was a case of arachnitis suddenly attacking a man worn down by previous disease, and therefore scarcely admitting of such active treatment as was capable of overcoming the inflammatory symptoms ; still however, after cupping, leeches and blisters, and very assiduous application of cold to the head, he rallied much beyond what was at first supposed possible, but he finally sunk exhausted. On the whole the case bears considerable analogy to Case III. in this section ; and on a review of both of them we are tempted to conclude that had it been possible to bring mercury to bear more speedily on the constitution, the result in both cases might have been more favourable.

#### CASE XXX.

##### *Arachnitis with excessive Irritability in an intemperate Man.*

GEORGE PATTISON, aged 37, was admitted under my care into the Clinical Ward, Guy's Hospital, December 16th, 1829. He was a very stout full-made man, servant to a brewer, and in the habit of drinking large quantities of porter. Last year he had an attack similar to the present, but less severe, of which he was cured in this Hospital by cupping and free purging of offensive black matter by calomel : he has since been twice threatened with attacks, said to have been checked by early bleeding.

On Saturday, the 12th of December, finding a drowsiness, which he had experienced

for a day or two, increasing rapidly, so that he could not possibly keep his eyes open, and believing that this was the forerunner of a relapse, he requested some of his fellow workmen to lead him home, and when there, sent to a surgeon to bleed him: sixteen ounces of blood were taken from his arm; he fainted, and from that time forwards lost all consciousness, and became delirious; large evacuations were produced by calomel and sulphate of magnesia, but without abating the violence of the delirium. On Monday he was cupped freely from the neck, the calomel was repeated, and twenty-four ounces of blood were taken from the arm in the evening; after which, for a few hours, he became more quiet; his pulse, which had previously been full and hard, with some jerk, became feeble; his skin, from being hot and dry, was covered with profuse perspiration, and his pupils contracted more freely to light; but the delirium recurred as violently as before in a few hours. Tuesday, the 15th, he was ordered three grains of calomel and a quarter of a grain of opium every four hours; some strabismus was observed that night.

The next day he was admitted into the Hospital. His face was much flushed, his head covered with profuse perspiration; there was a remarkable quickness of manner; his eyes constantly moving from one object to another; his hands somewhat tremulous, and every thing which he said perfectly incoherent; he seemed to be talking to some person present only in his imagination; "Yes, I am coming"—"Coming directly"—"Take these off the shelf"—and so on in quick succession. He was not violent, however, but sometimes got out of his bed; pulse 84, large, with some jerk, but easily compressed; bowels opened, but not freely; tongue slightly furred, but moist.

Sumat Hydrarg. Submuriatis gr. v, et Extracti Hyoscyami gr. iij statim, et

Habeat Olei Ricini ꝯss post horas quatuor.

Abtradatur Capillitium, et Applicetur Embrocatio communis.

Hydrarg. Submuriatis gr. ij quarta quaque hora.

9 P. M. When Mr. Dashwood, then acting as Clinical assistant, visited him, his delirium was so violent, that, as his pulse had acquired firmness, he thought it right to take away twelve ounces of blood by cupping from the neck; and, as the bowels had not been open, repeated the castor oil. After the cupping, the patient became more violent; and, on springing out of bed and running across the ward, his pulse became so feeble as to be barely perceptible. At 11 o'clock he was so violent, that it was found necessary to confine him to his bed; his pulse was weak and small, and he was perspiring freely.

Liquoris Opii sedativi ꝯx.

17th. Has passed a most restless agitated night, and is still in a state of violent delirium; the bowels not having been relieved, the castor oil was repeated in the morning; pulse from 120 to 140, small, and easily compressed; tongue rather dry; face flushed; skin moist. Ice was ordered to be applied in a bladder to the head. Fifteen

grains of colocynth and calomel, with five grains of the extract of hyoscyamus were administered, and the two grains of calomel were repeated every four hours.

8 P.M. Less violent; head and skin generally cooler; bowels not relieved; pulse 120, more natural.

*Injiciatur Enema Catharticum statim, et repetatur tertia quaque hora.*

11 P.M. From the continual restlessness of the patient but one injection could be given, which brought away considerable feculent discharge.

*Haustus Sennæ secunda quaque hora.*

*Repetatur Hydrargyri Submurias.*

18th. Bowels not further relieved; he slept about half an hour during the night; pulse 100; skin cooler; tongue moist but clammy.

*Extracti Hyoscyami gr. v quarta quaque hora.*

*Repetatur Hydrargyri Submurias.*

1 P.M. Bowels freely relieved.

8 P.M. Pulse 108; delirium still violent; skin hot.

19th. Fell asleep about 2 o'clock in the morning, and slept till 7 o'clock, when he awoke calm and collected; bowels have been most freely relieved; mouth very sore; no pain of the head; skin perspirable; pulse 68, very small; tongue moist and furred.

*R Camphoræ gr. iij,*

*Extracti Hyoscyami gr. v,*

*Fiant pilulæ quarta quaque hora sumendæ.*

20th. Slept pretty well; bowels open; pulse 80, soft and regular; tongue dry and glazed at the tip and centre, moist and furred at the edges; no pain in the head; the back, nates, and scrotum, much excoriated from lying in his urine during the delirium.

21st. Was prevented sleeping by palpitation at the heart, and pain in the epigastrium; but this has left him this morning; pulse 72; tongue clean and moist; bowels open; the back and loins very painful.

22nd. Convalescent.

In this case we see a modification of delirium tremens; and although it is possible, from the success of bleeding on two occasions in which the disease threatened, and from the rapid convalescence in the present attack, that the bleeding was not ultimately detrimental,—yet there is no doubt that it was carried to the full extent which was admissible, and that the first effect of the depletion was in almost every instance to increase the irritability. It is likewise quite obvious that cold applications to the head, purging, mercurials, and the very cautious use of narcotics, were the remedies which produced a much less equivocal good effect; and in this respect the case bears the strongest analogy and resemblance to that of Ann Groves. (Case VIII.)



## CASES

ILLUSTRATIVE OF THE EFFECTS PRODUCED BY INFLAMMATION AND INFLAMMATORY IRRITATION OF THE MEMBRANES OF THE BRAIN, IN CONSEQUENCE OF GENERAL FEBRILE ACTION, OR OF INFLAMMATION SET UP IN OTHER ORGANS OF THE BODY.

It is a matter of some difficulty to say, whether the symptoms denoting affections of the head, which frequently arise in connection with febrile diseases and in the course of inflammatory attacks, should be considered the indications of inflammation, or simply the effects of severe irritation. I am inclined to think that they originate in irritation, but that they sometimes early assume the character of true inflammation; still, however, to a very advanced period, capable of being overcome by subduing the original disease, without requiring active remedies to be applied to the part; such as idiopathic inflammation of so important an organ would under many circumstances demand.

In the former volume of these Reports, I have had occasion to make reference to the secondary affections of the brain coming on in fever with irritation in the mucous membrane of the bowels; and I shall now insert two or three more cases of the same character, both because they are immediately connected with a very important class of cerebral affections, and likewise as they will afford me an opportunity of rendering more perfect the series of cases and engravings illustrative of the diseases of the mucous membrane of the bowels during fever.

### CASE XXXI.

*Inflammatory Irritation of the Brain, dependent upon the condition of the Mucous Membrane of the Intestines, in Fever.*

Miss ———, a young lady, came from the country on a visit to London; she appeared to have contracted a simple feverish or catarrhal ailment, for which she took five grains of calomel: but on the following day, instead of being better, her symptoms increased, more particularly such as denoted high cerebral excitement: she had little or no tenderness of the abdomen, and her disease was considered as bearing the character of Phrenitis, under which view of her case she was treated, and sunk on the fourth day from the first attack.



## SECTIO CADAVERIS.

Mr. Key, to whom I am indebted for this case, was called upon to examine the body.

Not the slightest traces of disease could be perceived in the head ; but the intestinal canal was the seat of most intense inflammation ; in the midst of which masses of aggregate glands were seen projecting like excrescences upon the mucous membrane, and surrounded by smaller elevations caused by the enlargement of numerous solitary glands ; and this appearance extended through many inches in the lower part of the ilium, but was most observable near the valve of the colon, where a coating of coagulable lymph covered the mucous surface, and the colon itself partook of a similar derangement. (Plate IV.)

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In this case, the secondary irritation of the brain was carried to the highest pitch without having left the slightest trace upon the organ : it is by no means improbable, that during life much increased vascularity existed : but unfortunately this is an appearance which, in recent cases of inflammation, is likely to be evanescent, and to subside in some degree as the powers of life recede : there can be no doubt respecting the priority of the disease in the intestines. The peculiar appearance of the aggregate glands is one to which I have referred in my former volume in the case of Elizabeth Upton (Case LXXIV. page 193), where, however, the affection seemed more chronic ; the excrescences in many cases quite overhanging their bases, and the surface showing a more or less advanced stage of ulceration, though the vascularity and the effusion of lymph were much less conspicuous than in the present case.

## CASE XXXII.

*Irritation of the Brain with slight Coma, dependent upon Inflammation of the Mucous Membrane of the Intestines, terminating in Perforation.*

WILLIAM SPOULL, aged 23, was admitted into the Fever Hospital on the 20th of October 1829. He stated, that three weeks before admission he was attacked with the ordinary symptoms of fever, which he ascribed to exposure to cold. He had been bled from the arm, and had taken purgative medicines. The symptoms when he was sent into the Hospital were apparently most urgent in the chest. He had frequent dry

cough, which produced some uneasiness in the chest; his skin was warm; his tongue dry and red; some tenderness of the abdomen. His bowels had been kept open; pulse 102, soft. He had no delirium; but there was an air of dullness about him, which was perhaps increased by deafness, which had taken place in the progress of the disease. His powers were evidently much sunk.

He was ordered a mild aperient powder and castor oil.

21st. His pulse was 96; he had passed three stools; the chest symptoms were much the same; he was drowsy, and therefore was not disturbed.

Applicetur Emplastrum Cantharidis sterno.

Abradatur capillitium.

Repetantur Pulvis et Oleum Ricini.

22nd. Pulse 92; three stools; tongue unchanged; the cough continued with scanty viscid expectoration; respiration natural.

℞ Misturæ Mucilaginosæ ℥jss,

Tincturæ Hyoscyami gtt. xxv,

Vini Ipecacuanhæ gtt. xx;

Fiat Haustus quarta quaque hora sumendus.

23rd. Pulse 100; skin more warm, and breathing hurried; expectoration tinged with blood; and he has passed four bloody stools; tongue a little furred and dry.

Applicentur Hirudines x pectori.

Contin. Haustus ut heri.

24th. Pulse 104; breathing less accelerated, and cough better; three stools without blood; tongue covered with aphthæ.

Habeat Misturam Acetatis Ammoniæ.

25th. During the night he has been suddenly seized with most acute pain in the belly, which is tense and swollen; four motions without blood; tongue nearly clean, being only slightly furred at the root; skin warm; pulse 112, sharp; countenance exceedingly anxious.

Mittatur sanguis ad ℥xvj.

Foveatur Abdomen.

26th. Blood sisy; pain of belly very little relieved, and still very tender under pressure; countenance sharp and cadaverous; frequent bilious vomiting; two dark slimy stools; breathes only with the chest; a blister has been put on the belly; pulse rapid and scarcely perceptible.

Pilula Calomel. cum Opio tertia quaque hora.

28th. Died yesterday, two hours after the visit.

## SECTIO CADAVERIS.

Brain healthy. The apex of the left, and lower portion of the right lung inflamed. The principal disease was in the abdomen. There was a considerable quantity of turbid serum in the pelvis, which appeared to be mixed with sero-purulent fluid and fecal matter. On tracing the intestines, a large circular opening was discovered in the extremity of the ilium, very near the ilio-cæcal valve, through which the intestinal contents had escaped. The peritoneal covering of the intestines was considerably inflamed, and adhesions by means of recently effused lymph had formed between the omentum and convolutions of the bowels. The folds of the intestines were also adherent to each other in several places. On slitting up the tract of the intestines, from the stomach to the rectum, there were most extensive patches of ulceration in the lower part of the ilium, and in the cæcum, and colon. This latter bowel was much contracted, and its coats so lacerable that it gave way very easily when raised. The aperture in the ilium formed the centre of a large ulcer of the size of a crown-piece. There was besides in the ilium, near the large perforation, a minute aperture of the size of a large pin-head, and in several places the ulceration had penetrated the muscular coat. (Plate IV.)

The liver, spleen, pancreas and kidneys were sound.

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In this case, the secondary affection of the head was much less severe than in the preceding case, and in very many which I have witnessed: it was chiefly characterized by stupor, which was observed on the day after his admission and continued to his death; and which, in connection with his deafness, may probably be considered as the subsiding stage of the cerebral irritation: that it did not depend on effusion was evident from the healthy appearance of the brain after death.

I am indebted for this case to Dr. Tweedie, in whose experience at the Fever Hospital the combination of cerebral and abdominal symptoms in various degrees frequently occurs.

## CASE XXXIII.

*Arachnitis coming on in Fever with diseased Intestines, and terminating in Serous Effusion.*

MARY COLLINS, aged 21, had been labouring under fever for a week, and had been bled from the arm to twelve ounces on the day before I saw her, which was the 26th of December. The blood which had been drawn was very slightly congealed, and had not separated. She had passed a very bad night, rambling much, and frequently calling out very loud; her hands and arms were now in constant agitation, almost as in severe chorea; she turned from side to side in a state of great restlessness: her face was covered with perspiration; tongue dry and brown; pulse above 120, scarcely to be felt for subsultus: she answered with great difficulty that she had no pain in the head; skin generally warm, belly soft, and she does not complain on pressure; pupils much dilated, acting irregularly, rather dilating than contracting by the light of a candle; her hands were of a dusky colour.

Abtradatur capillitium, et applicetur Embrocatio communis.

Admoveatur Emplast. Cantharidis nuchæ.

Habeat Hydrargyri Submuriatis gr. j sexta quaque hora.

Enema ex Decoct. Avenæ statim, et Enema ex Olei Ricini ℥j vespere si opus fuerit.

27th. It was not necessary to give the oil injection, several dirty watery dejections, very offensive, having come away. In the evening she had been very violent; the night was passed in a more comatose state, with occasional rambling; pupils more contracted, but acting more to light; pulse 145; respiration 60; her face covered with drops of perspiration; hands very cold, and have been kept still, but are now in motion; tendency to ecchymosis in various parts.

Habeat Hydrargyri cum Cret. gr. iij, Pulv. Ipec. gr. fs, Pulv. Cretæ comp. gr. x sexta quaque hora.

Applicetur Cataplasma Sinapis scrobiculo cordis statim et vespere.

She died on the following morning.

## SECTIO CADAVERIS.

Slight effusion under the arachnoid; the vessels of the brain in general turgid, the substance looking on that account pinkish with many bloody points; effusion of serum in the basis also. Liver loaded with blood; spleen natural, but curiously lobulated; kidneys healthy; the lining membrane of the stomach vascular in parts, with slight ecchymosis and some

star-like vessels; duodenum vascular, with its mucous glands considerably enlarged; small intestines vascular in patches; and about a foot in length of the ilium showing the patches of aggregate glands thickened and elevated, and particularly around the valve of the ilium going into a state of ulceration, forming a thickened mass which projected round the edge into the cæcum; the cæcum very vascular and dark. The glands of the mesentery enlarged and purple; the glands of the mesocolon of the size of small plums.

#### CASE XXXIV.

##### *Cerebral Irritation subsequent to Fever.*

For the following very interesting case I am indebted to Dr. Dill, in whose words I shall relate it: and although it is not easy to determine the nature of the peculiar nervous affection under which this lady suffered so severely on the recession of her attack of fever, yet it is evident that it was attended by an extreme state of morbid irritability. Many of the symptoms would lead us to consider it as a modification of hysteric disease, induced by the over-action which had existed in the brain during the previous fever. And the happy result of the determined and judicious practice which Dr. Dill adopted, would lead to the belief that a state of congestion had been produced in the weakened vessels of the head, which it required the powerful application of cold to overcome.

"A YOUNG lady, aged 16, was seized, upon the 19th of March 1826, with the ordinary symptoms of continued fever, which were described to have been at first mild, but from having been long neglected gradually increased in severity, and ultimately became alarming.

"About a fortnight after the commencement of her illness (April 3d), I saw her for the first time. She complained of considerable headache, slight intolerance of light, watchfulness and nausea. Bowels very torpid, requiring double doses of the strongest purgatives; pulse 110, easily compressed; skin warm, tongue white and dry, thirst excessive.

Abradatur Capillitium, et Applicetur lotio gelida.

Hirudines xvj fronti.

R Sulph. Magnesiae ꝑss.

Infus. Sennæ Comp. ꝑij. M. Fiat Haustus pro re nata sumendus.

Sumat Haust. Efferv. tertia quaque hora.

"4th. Pulse 112, of the same character; skin less warm; headache less severe; no sleep: two scanty clay-coloured stools; great thirst.

*Repetantur Hirudines xij temporibus.*

*& Submuriat. Hydrarg. gr. v.*

*Ext. Colocynth. comp. gr. x. M. Fiat Pilulæ iij statim sumendæ.*

*Repetantur Haust. Purgans et Effervescens.*

"5th. To-day, at half-past 12 A.M., was attacked with an asthmatic paroxysm of the following character. From 8 to 10 very hurried and imperfect respirations were performed in less than half a minute; and as the quantity of air inhaled during this period seemed greater than that expired, the lungs followed up every eight or ten of such respiratory acts by one full and deep expiration. A number of these imperfect respirations and expirations constituted the asthmatic paroxysm, which continued for half an hour. Pulse 118; other symptoms unchanged.

*Applicetur Empl. Vesic. capiti. Repetantur Pilulæ et Haust.*

"7th. Head better; eyes very weak and generally shut; nausea considerable; thirst excessive. No less than four gallons of bread-tea have been drunk within the last few hours; urine copious and pale-coloured; asthmatic paroxysm returned yesterday at the same hour, and continued until half-past 1 P.M., and again recurred at 6 P.M. and lasted until 7. Both fits were precisely similar, came on and disappeared in the same way, and continued the same length of time. During these paroxysms the headache was much increased, but there was no affection of mind, nor convulsive tendency manifested in any other organ.

*Repetantur Medicamenta.*

"11th. Since last report symptoms scarcely altered; asthmatic fits have appeared daily at their usual period, and each continues now an hour; bowels very torpid, stools dry, clay-coloured and offensive; thirst undiminished; urine copious, yet not in proportion to the quantity of fluids taken; headache more severe; eyes constantly shut, mind unaffected except at night, when it is disturbed by phantoms and fanciful appearances; nausea frequent; tongue white: scarcely any sleep; no stool to-day; head has been again blistered since the 7th, and the discharge produced, which was unusually profuse, was followed by temporary relief: pulse 120.

*Applicentur Hirudines xij temporibus.*

*& Calomel. gr. viij.*

*Pulv. Jalap. ʒj. M. Fiat pulvis statim sumendus. Repetantur alia.*

"14th. Scalp healed up and dry: passed yesterday evening and last night in a state bordering upon syncope; breathing scarcely to be perceived; face pallid, surface cool: when addressed answered sensibly, but disliked speaking; towards morning became very sick and threw up a quantity of bilious fluid, but without relief; was recovered from this condition by the administration of very stimulating enemata and the application of warm bottles to the feet; pulse 128, weaker.

Repetatur Empl. Lyttæ capiti.  
 R Scammoneæ gr. vj,  
 Calomel. gr. xij,  
 Extract. Colocynth. comp. ʒj,  
 Ol. Croton. Tig. gtt. iij; M. Fiant pilulæ viij, quarum sumat unam secunda  
 quaque hora ad alvi plenam solutionem. Repetatur Haust. Efferv. tertia  
 quaque hora, et Haustus Purgans cras mane.

"21st. The asthmatic paroxysms have been gradually increasing since last report. Likes to keep the head low, feels as though she were sinking in the bed; frequent nausea and occasional vomiting of bilious fluid: two cap-blisters have been applied to the head since the 14th, with the effect of producing a brief alleviation of the general symptoms; complains of a sense of noise in her ears and loss of taste; eyes still intolerant of light and constantly covered with the eye-lids: intervals of sleep during the night, which is much disturbed by frightful dreams; while awake mind sensible when addressed; three copious stools during the last twenty-four hours: pulse 135.

R Tinct. Digital. ʒss,  
 Spirit. Æth. Nit. ʒss,  
 Aq. Cinnam. ʒiv; M. Sumat ʒj sexta quaque hora. Repetatur Mist. Purg.  
 Applicetur Empl. Lyttæ capiti, et sumat Pil. cum Calomel. gr. v.

"May 3rd. Little alteration since last report: asthmatic fits are now lengthened to three hours each, but maintain precisely the same character; urine limpid and of insufficient quantity; thirst unabated; great sense of weight in the head; some squinting when the eyes are opened and exposed to the light; can with very great difficulty ascertain the hour by the watch; tongue white; two stools: pulse 100.

Applicetur Empl. Lyttæ capiti. Repetantur alia.

"10th. Slight salivation; head more easy and feels lighter; eyes continue weak; cannot bear the erect posture; keeps the head off the pillow and sinks it in the bed; squinting less perceptible; scalp quite raw and discharges profusely, bowels excessively torpid; stools of the same character; tongue white; thirst continues unabated; urine nearly natural both in quantity and colour; the morning and evening fits of asthma have now run into each other, leaving no mid-day intermission, and continue conjointly from 12 A.M. to 10 at night.

Repetantur omnia.

"20th. Asthmatic fits still on the increase; salivation profuse: pulse 100; other symptoms unchanged.

R Tinct. Valerianæ Ammoniata ʒj,  
 — Digitalis gtt. xv,  
 Spirit. Æth. Nit. ʒss,  
 Aq. Ment. pip. ʒj. M. Fiat Mistura sexta quaque hora sumenda



R Camphoræ gr. vj,

Opii gr. jfs. Fiat Bolus hora somni sumendus.

"25th. Every symptom aggravated; asthma now continues from 12 in the morning till 12 at night; thirst unabated; salivation continues; scalp quite healed; strabismus increased; constipation almost invincible; pulse 95.

Applicetur Empl. Lyttæ capiti. Repetantur Mist. Purg. et Diuret. Omittantur Pilul. et Mistura.

"June 16th. To journal the symptoms of this case further would be more tedious than instructive, as no change of consequence occurred from the 25th of May till the middle of June; when it was too obvious that every thing which had been hitherto done was only palliative, that the strength of the disease was still unbroken, the seat of the mischief was still undisturbed. The symptoms had been evidently alleviated on the appearance of salivation, but their alleviation was only temporary; sixteen cap-blisters had been applied to the scalp, and every new blister had given a transient check to the progress of the malady; enormous doses of active restoratives preserved the intestinal canal in a state of artificial excitement; and diuretics, by their effect upon the kidneys, limited probably the operation of the cerebral disorder. But the asthmatic paroxysm now occupied sixteen hours out of the twenty-four, strabismus, sense of weight and pain of head, nausea and occasional tendency to syncope continued, and while the powers of life were evidently deteriorated, the hopes of its prolongation were rather diminished than increased. It was now resolved upon, therefore, that blistering should be abandoned, that the scalp should be allowed to heal, that cold affusion upon the head should be tried as a substitute, and that the other remedies should be continued as usual.

"Upon the 19th of June, accordingly, this treatment was commenced with obvious yet transient relief. The disturbance of the stomach was at this period excessive, the tendency to syncope frequent and alarming; but after each application of the water both of these symptoms were materially diminished for a time. Encouraged by this partial success, the water was more forcibly and more frequently applied. In place of being poured upon the fore part and apex of the head from a jug raised to a small height, it was let fall in a large and continued stream from a common watering-pot, which was held upwards of five feet above the patient's head. At first not more than one pot, containing about two gallons, could be borne; but the feelings of the patient became gradually habituated to the impressions of the water, and in the course of a few days five and six pails-full were emptied at one application, and the remedy was repeated about every fourth hour. On the 24th of June the first effect of this treatment was perceptible. The asthmatic paroxysm, in place of continuing uninterruptedly for sixteen hours, was diminished to fifteen; on the 25th to thirteen hours and a half; on the 26th to eleven hours; by the 30th it was reduced to three hours, and upon the 4th of July it altogether ceased. With this gradual decline of asthmatic breathing,

every other symptom exhibited a corresponding improvement. The thirst abated, the tendency to faint was less frequent, the sense of cerebral oppression and weight of head diminished, the bowels became more obedient, the stools more natural, and within a few days after the asthmatic breathing terminated, there remained no other vestige of disease than great debility. By nutritious diet cautiously given, tonics combined with diuretics, and an occasional aperient, convalescence was rapidly promoted; and in the beginning of August she accomplished a journey of twenty-four miles, in returning to her family from a boarding-school in which she had been nearly five months confined."

### CASE XXXV.

*Secondary Irritation of the Brain, probably producing Inflammatory Action in that organ in a Case of Peritonitis.*

ROBERT RINGWOOD, aged 16, was admitted into Guy's Hospital, March 18th 1829, the subject of ascites, which it was said had not existed above three weeks; he was able to walk about pretty well, but the accumulation increased rapidly in his abdomen, and on the 27th he began to suffer so much from distention that it was judged right to relieve him, and he was consequently tapped as he lay in a reclining posture, when serum to the amount of two gallons and a pint was removed. He became somewhat faint during the operation; the fluid was clear and of a light colour.

On the following morning he complained of pain when pressure was made on the abdomen, but more particularly at the pit of the stomach; he had passed a larger quantity of urine than usual. Twelve leeches and afterwards a blister were applied to his abdomen. He appeared to be going on pretty well to the 29th, having passed a quiet night, and complaining of no pain on pressure of the abdomen; his bowels were open. On the morning of the 30th he took half an ounce of castor oil, and in the afternoon became remarkably restless and uneasy; fifteen minims of laudanum were administered, which dose was repeated about 5 o'clock, and as no decided relief had been obtained, was again administered at bed-time. His state of restlessness and excitement increased, and about midnight he became quite delirious and violent, in which state he still continued, when I saw him for the first time about one o'clock in the afternoon of the 31st. He was then unconscious of surrounding events, crying out and screaming loudly, rolling his head, turning up his eyes, and throwing himself about in bed so violently as to require restraint; he would sometimes lie quiet for a few seconds, and then begin screaming as before. He was not capable of referring pain to any part on account of his state of delirium; he was cupped behind the ears, and had his head shaved.

His state continued nearly unchanged till the following day, when he became perfectly insensible, with pupils widely dilated; he suffered one or two convulsive fits,

and was never sufficiently sensible to express any pain till two hours before his death, when he became conscious, knew his relations and those about him, and complained of pain in the abdomen. He died in the evening of the first of April.

#### SECTIO CADAVERIS.—April 2nd.

The dura mater strongly attached to the skull, the pia mater remarkably dry, separating from the brain with some difficulty. The large vessels by no means turgid with blood, but the smaller vessels more injected in fine red ramifications than usual, without producing any general red colour. The basis of the brain more dry than generally seen. Convolutions somewhat flat. The cineritious matter soft, not dark coloured. The medullary matter of a dead white, with many vessels, showing open mouths on being cut; the veins in the ventricles large, but not more than half an ounce of fluid in all the ventricles together. The pineal gland vascular; indeed throughout there was rather more vascularity than might have been considered natural. Lungs and heart healthy.

The liver diseased throughout, principally in its cellular tissue, so that the natural structure was nearly destroyed, the acini drawn up into lobes, and a large disproportion of cellular substance assuming a spongy appearance. The surface of the liver rather opaque and much drawn into lumps. Gall bladder moderately distended with bile. The peritoneum universally inflamed, evidently covered on the part lining the abdominal muscles with old deposit; but besides this the most extensive recent inflammation, shown by flakes of lymph uniting the convolutions, and a considerable effusion of turbid serum in the pelvis. Kidneys not at all diseased. Spleen large.

#### CASE XXXVI.

*Secondary Irritation of the Brain, probably producing Inflammatory Action in that organ, in a case of acute Peritonitis.*

IN another case of very acute peritonitis, in which death took place within fifty hours after the first alarm, and where so much affection of the head existed from the beginning as to render it matter of doubt to the bystanders whether the medical men were not mistaken in supposing the chief mischief to be in the abdomen; the little boy getting frequently out of bed in his delirium in spite of the inflamed state of the peritoneum; I had an opportunity of examining the brain as well as the other viscera.

## SECTIO CADAVERIS.

On opening the abdomen, the liver and omentum came into view, covered with a coating of yellow puriform coagulum, and on carefully removing the omentum it was found to be slightly glued to the intestines underneath by the same substance. All the convolutions of the intestines were in the same way glued to one another; but as this effusion was recent they were easily drawn asunder, and the coagulated lymph lay in large shreds and flakes upon the surface. The same appearance was displayed over the surface of the liver, the stomach and the spleen, and between all the convolutions of the intestines and folds of the mesentery. On some of the convolutions of the small intestines and the cæcum, considerable vascularity was traced. The quantity of lymph amounted to about a pint. The internal coating of the intestines was healthy, that of the stomach studded near the cardia with points of vascularity. The substance of the liver, the spleen and the kidneys, perfectly healthy. The lungs and heart and large vessels quite natural.

In the head, the vessels of the dura mater rather turgid. The same might be remarked with regard to the vessels of the arachnoid: and the large veins were of somewhat unusual size, not from recent disease but from original structure. There was no effusion of fluid under the arachnoid, and the convolutions of the brain were not flattened. On examining the internal structure of the brain, there was distinct evidence of the minute vessels being more loaded with blood than in perfect health; but so far from there being any effusion into the cavities of the brain, the ventricles were unusually small, and contained less than the natural quantity of fluid, amounting to a drachm in the whole. The cerebellum was perfectly healthy, and there was no effusion at the basis of the brain.

## CASE XXXVII.

*Inflammatory Irritation of the Brain, connected with a fatal attack of Phlegmonous Erysipelas in the legs.*

JOHN WRIGHT, aged 25, was admitted into the Clinical ward, Nov. 18th, 1829. He was a very robust seaman, who said he had formerly been in the habit of drinking a great deal but had latterly abstained. He had received a contusion on the knee a month before, which was doing very well until ten days ago, when he again struck it during a heavy gale of wind and rain, and was unable to change his wet clothes

during twenty-four hours. The same evening his knee became acutely painful, and it swelled, but was gradually getting better. On the night of the 14th he was taken with headache followed by vomiting and purging; stiffness of the neck and pains in the back and loins. On the 16th both his legs became swollen and painful, with much thirst and general fever, which increased towards night with delirium. He at present complains of pain in the head with sickness; slight pain of the left side, but not increased by inspiring deeply; pulse 116 with some jerk; tongue of a florid red colour, dry and with a sense of soreness; great thirst, flushed face, bowels open; skin hot and dry, but he says he is cold and chilly; no pain at the scrobiculus cordis. He has a small ill-looking ulcer upon the left knee, on the top of the patella, but the joint is quite free from disease; the leg at the back part is swollen and tense, acutely sensible, and covered with a slight blush of redness. The right leg is much more generally swollen, more tense, more sensible, and with a more extensive erythematous blush.

Habeat Antimon. Tartar. gr.  $\frac{1}{4}$ . Opii purif. gr. fs, Hydrargyri Submuriatis gr. ij sexta quaque hora. Mist. Salina.

A cooling embrocation was applied to his forehead and temples.

9 P.M. The right leg more swollen, with an increase of redness and pain: he is very delirious with great restlessness. Pulse 136 and weak. The spirit lotion to be continually applied warm to the legs.

Nov. 19th. He passed a restless and almost sleepless night, with wild delirium; the hair was taken more completely from his head, and the wash applied, after which he became more tranquil. Skin hot and dry; pulse 132 and very weak: three small evacuations from the bowels; urine clear; his legs much in the same state as last night, but the right foot had a mottled livid appearance. When I made my visit in the middle of the day, I requested Mr. Key to see him with me; the legs, more particularly the right, were swollen and excessively tense, the foot appearing strangulated by the swelling;—Mr. Key to relieve these symptoms, which seemed to threaten gangrene of the foot, made two incisions in the leg, one on the inner side about one third down the leg over the gastrocnemius; the other on the outer side about half-way down, both penetrating the muscles, which appeared healthy: the cellular membrane was not much infiltrated, but a small quantity of bloody serum followed the incisions, and the muscles protruded owing to the surrounding tenseness. A large poultice was then put over the limb, and he was ordered to take support. A pint of porter was also to be given him; the effects to be watched, and if the pulse did not rise, more was to be allowed.

Habeat Hydrargyri cum Cret. gr. v statim, et Olei Ricini  $\frac{3}{4}$ fs post horas quatuor.

Sumat Extracti Hyoscyami gr. v. quarta quaque hora.

Applicetur Cataplasma Sinapis scrobiculo cordis.

6 P. M. Pulse scarcely perceptible; he is constantly delirious, restless and agitated.

Eggs beat up in brandy were ordered to be taken directly, and to be repeated in an hour. As the face was cold, the lotion to the head was discontinued.

8½ P. M. Pulse a little stronger; bowels well relieved by the castor oil.

11 P. M. Being still restless, he took ten grains of the extract of hyoscyamus, and in half an hour five grains more: he repeated the brandy: the feet and legs below the knees quite cold; right foot livid, and at the incisions the divided muscles are protruding in consequence of the surrounding pressure.

Nov. 20. 1 A. M. Much the same, but the coldness of the extremities increased; hands becoming cold, and he complains of a general feeling of chilliness.

7 A. M. He sunk gradually, having been quiet since half-past five. He had taken in the course of the night sixteen ounces of brandy.

#### SECTIO CADAVERIS.

The whole frame very muscular, with a general tinge of yellow almost amounting to slight jaundice. The dura mater being raised, no unusual vascularity was seen upon the membranes beneath; the surface of the arachnoid felt slightly unctuous; there was no fluid under the arachnoid, and not more than usual in the ventricles; the substance of the brain in all parts natural. Slight ecchymosis upon the surface of the left lung penetrating the substance a little way, and about a quart of serum tinged of a brown colour in the cavity of that side. The heart was contracted to its utmost, so that the left ventricle had no cavity in it. The abdominal viscera presented no mark of disease; except the spleen, which was rather large, somewhat mottled, and easily broke down into a light red grumous mass.

The right leg was livid; the cuticle about the upper part was raised, with a dusky serum; considerable swelling was observed about the posterior part of the external malleolus, and about an ounce and a half of bloody serum escaped on an incision being made. On cutting deeply among the muscles, the cellular membrane uniting them was found in a highly inflamed condition, passing into a state of slough with much turbid serous infiltration. The soleus was soft and pulpy as if macerated; the tendinous structure covering it could be easily separated and drawn out into threads; the muscular fibre immediately underneath, for the depth of a line was of a much deeper colour than the rest, as if in a state of more acute inflammation, and was also softened; the gastrocnemius externus was comparatively healthy, and the adipose cellular tissue beneath the skin but little

infiltrated. The periosteum did not appear affected, nor were the veins of the limb inflamed; two small coagula not adherent were found in the Saphena major vein.

The left leg presented appearances of the same character, but in a less advanced state.

### CASE XXXVIII.

#### *Irritation in the Brain, without effusion, in Scarlatina.*

Is the case of a child seven years old who died of scarlatina, after having been in an increasing state of delirium for the greater part of three nights and two days, the only appearances afforded in the brain were, a little more vascularity than natural, and decidedly less serum both under the arachnoid and in the ventricles than is usually observed.

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There is another class of diseases in which a tendency to inflammation in the membranes of the brain is often connected with previous disease. And that is where the liver has been seriously implicated in inflammatory action, when we very frequently discover the imperfect way in which that organ is discharging its important functions, from the yellow tinge communicated to the skin.—In these cases the general irritation of the system often proceeds till it shows itself in the most active delirium, and in other marked symptoms of inflammation of the membranes.

### CASE XXXIX.

#### *Inflammation of the Brain dependent on Hepatic Inflammation.*

SARAH JEWBELOT, aged 55, a stout woman, was admitted, May —, 1825, into Guy's Hospital under my care. She laboured under marked symptoms of hepatitis. She was bled three times from the arm, and took calomel and opium every six hours till the mouth was sore. The hepatic symptoms were nearly gone by the tenth day after her admission. She then, however, became delirious, and showed other symptoms of inflammatory action in the head. She was twice cupped in the neck and had a blister applied, which relieved the urgent symptoms, and afterwards by establishing an issue in the leg where an old ulcer had lately been healed up, she left the house in about four weeks from her admission quite convalescent.



## CASE XL.

*Delirium with great Hepatic Irritation.*

A WOMAN died under my care in Charity ward, suffering the most distressing delirium, frequently violent, together with most complete jaundice. On examination after death the liver contained hydatids; the cyst of one of which was ossified, and the vessels of the head, and more particularly of the dura mater, were turgid in a most remarkable degree.

## CASE XLI.

*Violent Delirium attendant on Hepatic derangement.*

It happened on the same day that I admitted the last patient I also admitted a man into Cornelius ward,—the confirmed subject of jaundice, from drinking cold liquor when hot; and in him the delirium, particularly at night, was so excessive as to require the occasional restraint of a strait jacket: nor was it till he had been freely bled, and calomel and opium had been brought to act fully on his constitution, that the inflammatory affection of the liver began to subside, and with it the jaundice and the delirium.

## CASE XLII.

*Inflammation on the Brain attendant on Hepatitis.*

I WAS called upon to visit Mr. M——, about two years ago, who had just returned from a tropical climate and been subject to considerable anxiety of mind. He was now in a state of decided cerebral excitement; his thoughts were active beyond what was natural; his conversation incoherent, his eye red and glistening; he complained of pain in his head, but at the same time his countenance bore a gilded colour, and the red of his conjunctiva was mixed with yellow. On pressing the region of the liver he immediately evinced signs of pain. I ordered him to be cupped on the neck, and gave him a calomel purgative: in the evening he was more wild. I sent for a gentleman to bleed him; and stood by till about twenty-five ounces were drawn, when he became faint. We then bound up the arm, and gave him frequent small doses of mercurials with saline purgatives, having the head at the same time shaved, and kept cool by an embrocation.

The symptoms subsided a good deal; but it was not till the secretion of the bile had been well established, till the mouth became a little sore, and he had been twice cupped from the region of the liver, that he was restored to his natural complexion; and then all the cerebral symptoms subsided.

Occasionally we find inflammation excited in the membranes of the brain, from diseases set up externally to the skull,—of which the following CASES furnish examples.

### CASE XLIII.

*Arachnites occasioned by Disease of the Scalp and followed by Effusion of Serum.*

A MAN was admitted into Naaman ward on account of a creeping ulceration of the scalp; he became delirious for several days previous to death, fell into a state of coma, and died November 30th, 1827.

#### SECTIO CADAVERIS.

The scalp was ulcerated through on the forehead more particularly, and the bone was slightly rough underneath. A very considerable effusion of serum had taken place under the arachnoid; a few more red points in the substance of brain than generally found, and excess of serum in the ventricles; the choroid plexus pale.

In the apex of the left lung an old tubercular cavity, which was lined with a smooth membrane, and seemed to be healing; one or two other tubercles in the lungs.

### CASE XLIV.

*Erysipelas with Effusion under the Arachnoid.*

WILLIAM HOWELL, aged 37, was admitted into Guy's Hospital, November the 5th. He was a stout muscular man who had worked in a distillery for fourteen years, during which time he had drunk spirits to a very great excess, but had not apparently suffered. His wife had scarcely recovered from erysipelas, when he was attacked with the same complaint. He was first seen by a medical man four days before his admission, and became delirious after two days: opium and wine had been administered in large quantities; and shortly before his being brought to the hospital, a small quantity of blood had been abstracted from the arm; but it was found that his strength failed so much that it was not thought prudent to proceed with the bleeding.

At the time I first saw him, he was lying completely on his back, his hands in constant motion catching at the bed-clothes; he was continually talking to himself and occasionally laughing. Erysipelas of a dark and dusky colour extended over the left side of the face, so as nearly to close the eyes; pulse 120 weak; tongue dry and furred; nostrils dilated; and when pressed by questions he said he had pain in the head. His head was shaved and kept cool; mustard poultices were applied to the feet; blisters to the nape of his neck: he had occasional doses of calomel and opium; his bowels were freely opened, and an attempt was made to support his strength. The

disease, however, proceeded, spreading over the whole face and scalp; the breathing became very laborious, the pulse more frequent; all the evacuations were passed in bed; excoriation took place on the nates; the delirium gradually subsided into coma and he died on the evening of the 9th.

SECTIO CADAVERIS, very shortly after death.

Considerable serous effusion under the integuments of the head. Dura mater natural. Beneath the arachnoid, which was thick and in several spots opaque, a very considerable quantity of clear watery fluid was effused. The larger veins of the pia mater turgid. The substance of the cerebrum and of the cerebellum was pale and flabby. There was rather an increased quantity of fluid in the ventricles, and much at the base of the brain and in the spinal canal. Lungs healthy, but loaded with serum and with blood; heart rather large and distended; mucous membrane of stomach and duodenum vascular; spleen large and soft; liver and kidneys very healthy.

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Such is pretty generally the appearance when erysipelas of the head has proved fatal: it appears that the first cerebral symptoms and the delirium depend on the irritation and inflammatory action set up in the membranes of the brain, and that this inflammation gradually leads to effusion of fluid, producing pressure; and hence the coma which generally preceeds the fatal termination, and which is always to be regarded as a very unfavourable symptom, however slight may be the indication of its appearance. Erysipelas attacking the head is at all times a disease of great danger, but in most cases will be rendered still more formidable by the employment of stimulants. It is one of those diseases in which more mischief may be done, by obstinately adopting one line of practice in all cases, than in almost any disease with which I am acquainted, as it varies very widely according to the subject attacked, and frequently from causes which we cannot explain. As a general rule we should abstain from stimulants as long as possible, and in the early stages we may deplete in moderation with great safety; sometimes we may take blood from the arm; more frequently we may take it, by cupping, from the neck; but in general, mild purging and gentle diaphoresis will be the most applicable remedies during the first week of the disease; and I am inclined to lay much stress upon the local treatment. Blisters to the nape of the neck, and that particular mode of scarification which has been recommended by Dr. Dobson, of Greenwich Hospital, which, as far as I have myself had an

opportunity of watching its effects, I consider one of the greatest improvements in modern medicine. This consists in making fine punctures, in number amounting to several hundreds or even thousands, with the point of a lancet over the whole inflamed part; then fomenting with warm water in a sponge, to encourage the bleeding; and repeating this operation two or three times in the twenty-four hours, if the parts look red or tense. If done early, it shortens the disease; but at all events it relieves the vessels in a manner which nothing else in my experience has effected. This remedy was unfortunately adopted too late in the fatal case I have just related: but I will insert the notes of a few cases, which are only a small part of those where I have either tried it myself or seen it tried by others.

With regard to cold applications to the head when affected with Erysipelas, I think them hazardous and often very injurious, increasing the mischief within the cranium: but the head should always be shaved, if possible, before the disease has extended from the face to the scalp; as this will very much facilitate the operation of puncturing, if the inflammation should attack the scalp, as will most likely be the case.

It is an important point in connection with this disease, to ascertain how far we are authorized in considering it as capable of being communicated from one person to another; and I own that I am strongly impressed with a belief that it becomes so under particular circumstances; that it is so where intercourse is close and continued, or where ventilation is neglected; and more decidedly when with these causes a certain general condition of atmosphere cooperates. I have seen many very striking instances bearing on this point; and even amongst the few cases related in this volume, without being selected in any way with a view of illustrating the fact, we find that in Cases XLIV. XLIX. and L. the erysipelas has arisen under circumstances of close intercourse with those who were already suffering from the disease: and although we must never lose sight of the fact that at certain periods Erysipelas is undoubtedly epidemic, yet instances such as those to which I allude occur so often, as to render it almost impossible for us to ascribe them to accidental coincidence.

## CASES

### OF ERYSIPELAS OF THE HEAD TREATED BY MINUTE PUNCTURES.

#### CASE XLV.

##### *Erysipelas of the Head during convalescence from Pneumonia.*

JULIANA PATE, aged 26, was admitted under my care on the 30th of June 1829, with pneumonia from exposure to cold and wet, which was completely removed by bleeding, leeches to the chest, and the solution of tartrate of antimony. When convalescent, on the 19th of July she was attacked with Erysipelas of the face, beginning on the nose and spreading over the whole face and scalp. On the 23rd the affection was extensive; and from its attacking the lining membrane of the nose and fauces, and coming on in a patient much reduced, it bore a formidable aspect. I ordered the whole of the inflamed parts of the scalp and forehead and face to be punctured twice in the day with the point of the lancet, and to be fomented. The relief given was very marked: the delirium, which had already come on, was checked, and the inflammation subsided; the punctures were repeated the following day, with the same good effect. A day or two after, it was requisite to apply a blister to the nape of the neck on account of a return of delirium, when the external inflammation was much diminished. From this time all the symptoms were moderated, and I was able to venture on the use of the lightest tonics.

#### CASE XLVI.

##### *Erysipelas of the Head in a case of Chronic Rheumatism.*

JOHN HURST, aged about 38, was admitted under my care on the 19th December 1829, with rheumatism, which, after passing from joint to joint for some time, assumed a chronic character: but he was receiving essential benefit from small doses of blue pill and the syrup of sarsaparilla, so that he was able to walk without assistance, when on the 7th of March he began to complain of a febrile attack, attended with considerable headache and some confusion, and a slight erysipelatous appearance on the face.

Applicentur Cucurb. cruentæ Nuchæ, et detrahatur sanguis ad ʒviij.  
Pilul. Colocynth. cum Calomel. gr. xv statim.  
Julep. Ammon. Acetat. cum Vin. Ipec.

March 10th. The disease has been going on extending over the face, but in a mild form.

Habeat Haust. Sennæ. Repetantur medicamenta.

12th. Little essential alteration.

Mist. Magnesiae ad alvi solutionem.

14th. He was delirious during the night; face greatly swollen and red.

Applicetur Empl. Lyttæ ampl. inter scapulas.

Habeat Hydr. cum Cret. gr. v statim, et Ol. Ricini ʒiſ post horas quatuor.  
Mistura Salina.

Let punctures be made over the whole inflamed surface with the point of a lancet.

17th. The punctures were performed three times with great relief; the inflammation of the face is subsiding rapidly, but he still wanders a little in his mind.

Hydr. cum Cret. gr. v statim. Ol. Ricini ʒiſ post horas quatuor.

21st. Sumat Infusum Rosæ.

24th. Walking about; his face perfectly restored, without any abscess or almost a trace of the disease. The rheumatic affection is subsiding rapidly, and bandages are now applied to support his ancles.

## CASE XLVII.

### *Erysipelas of the Head in a Paralytic Patient.*

WILLIAM PHYFERS, aged 40, by trade a chair-carver, was admitted into Guy's Hospital under my care February 20th, 1828. He first complained about six months before of occasional dizziness of the head when walking, attended with pains in the limbs, and some pain over the left eye. Five months ago he experienced double vision, which was relieved by blisters on the right temple. He has gradually found an increasing difficulty in retaining his urine, and his bowels are costive; he has much debility in both hands, particularly in the right, accompanied by a sensation as if sand were held between his fingers whenever he closes them, and when he puts his feet to the ground he feels as if standing upon some round body; he has no peculiar sensations in his face; his memory is in no way impaired; and he sleeps soundly without dreaming; appetite good.

Sumat Pil. Aloes cum Myrrh. gr. xv bis die.

Piat Setaceum Nuchæ.

25th. Bowels freely open; no change in the symptoms.

Decoct. Cinchonæ cum Tinct. Guaiaci Ammoniat. ʒiſ ter die.

29th. Complains of shooting pains from the middle of his thighs to his feet; pulse 100; thinks he has not been so well since taking the last medicine.

Habeat Vini Colchici ʒ xxx ex Mist. Sennæ statim.

Mist. Magnesiae cum Vini Colchici ʒ xx ter die.

March 1st. Sickness and purging; pulse weak.

Omit. Mistura.

3rd. Has passed a bad night, and complains of a noise in the head "like the water rushing through London Bridge"; sharp lancinating pain in the legs; deglutition somewhat impeded.

5th. Erysipelas made its appearance upon the ears yesterday, and is now extending over the face; pulse quick; tongue moist; four stools in the night. Let the seton be taken out.

Julep. Ammon. Acetat. cum Vini Ipec.  $\pi$  xv sexta quaque hora.

Olei Ricini cras mane si opus fuerit.

6th. To have his face punctured with many small punctures by the point of lancet.

On the following day the punctures were repeated, and it was evident that much relief was given. However, this did not prevent the Erysipelas from extending over the whole face, and being followed by abscesses of the scalp on the right side, which were opened on the 24th; and on the 28th small abscesses were opened under the eyes.

April 3rd. The erysipelas again attacked the whole face, which was of a deep red colour, and the eyes quite closed.

The punctures to be performed immediately: they bled freely; and I requested Mr. Linton to repeat them two or three times in the twenty-four hours, which was done with the best success.

5th. The swelling of the face subsiding rapidly; and in a few days he was a second time convalescent.

## CASE XLVIII.

### *Erysipelas of the Head in a healthy man.*

JOSEPH EVANS, aged 32, was admitted into Guy's Hospital under my care, August 4th, 1829, labouring under erysipelas. He was lying on the bench in the room of admission almost comatose. His nose, the whole of the right and part of the left cheek red and greatly swollen with erysipelas: his manner, when roused, was hurried; his tongue red at the edges, brown in the centre, dry, and much cracked. He was immediately taken to bed, when it was found that the erysipelas extended over his throat and the back of his neck and shoulders. Pulse 140; respiration 30; bowels very much relaxed.—The account which he and his wife gave of the attack was, that five days ago in the afternoon he was seized with shivering, succeeded by epistaxis, which increased the following day; and two days after, the inflammation of the face appeared.

His head was ordered to be shaved immediately, and then punctures were freely made with a point of the lancet over every part of the forehead, nose, cheeks, and chin, to which the erysipelas extended; these punctures bled most freely, and this was en-





couraged by warm sponges. He took the simple saline; and I ordered the punctures to be repeated in the evening and again before my visit in the morning.

6th. The punctures were repeated last night, but had not been employed this morning; he had passed a restless night, and the inflammation, though decidedly less on the parts which had been freely punctured, had extended so as completely to close the left eye as well as the right, and had proceeded below the clavicles in front, and to the scapulæ behind; the scalp was also now swollen and inflamed all over. Pulse 128; respiration 44; tongue dry; manner hurried; hands unsteady; his bowels had not been open. I immediately had the whole face and scalp and ears most freely punctured; the punctures bled very well, and from one small artery of the scalp he lost at least eight ounces of blood, so that after an hour it was found necessary to divide it and make pressure.

*Injiciatur Enema purgans statim.*

*Habeat Julep. Ammon. Acetat. cum Vin. Antimon. sexta quaque hora.*

9 P.M. I paid him another visit, and the punctures were freely repeated.

7th. He had passed a disturbed night, but was perfectly sensible; his eyes were completely closed, more by a puriform secretion than by the swollen eyelids, which were much reduced, and the whole of the swelling, both of the face and scalp, was greatly relieved. The punctures had been again used this morning, and it was now only necessary to puncture a few parts, as the ears and back parts of the cheeks, where the inflammation was most marked. Pulse 100, compressible, but easily increased in frequency by the least disturbance; tongue dry and red; respiration 32; bowels freely open. The inflammation was proceeding down his body, but in a very subdued form, when compared to that on the face and scalp. The medicine excited nausea and sickness.

*Mistura Effervescens.*

He was allowed a little arrow-root, with a very small quantity of beef-tea.

8th. Considerably better in all respects, and begins to see a little with one eye; still complains of sickness; bowels not sufficiently open.

*Adde Tinctur. Opii ʒiij singul. dos. Mist.*

*Injiciatur Enema commune.*

9th. Still improving in every respect.

*Infus. Rosæ Comp.*

11th. His face is now completely desquamating; the swelling is almost subsided; the inflammation entirely gone; tongue moist and clean.—The erysipelas has extended to the groin and thighs, but has quite subsided above, and is of a very mild character: bowels not sufficiently open.

*Pulv. Rhei cum Cal. gr. xij statim.*

17th. The inflammation has extended nearly to the knees; the nates have desquamated.

From this time he was quite convalescent; but his dismissal from the Hospital was delayed till the end of September by the occurrence of an abscess in the cellular membrane on the right side of the chest, which was opened, and discharged a considerable quantity of pus.

### CASE XLIX.

*Erysipelas of the Head in a healthy woman exposed to the disease in another person.*

ELIZABETH EVANS, the wife of the above patient, attended him very carefully, sitting up with him during the whole of three nights in succession.—August 9th, began to feel feverish, and observed a swelling near the angle of the left jaw; this inflamed, and the inflammation extended over the face.

17th. Her face has been punctured, but not effectually; it is still swollen all over, and inflamed and vesicated; her eyes closed; she is sensible.—The face was again punctured two or three times.

The erysipelas extended over her neck and the upper part of her body, and was followed by abscess on the left side of the neck.

### CASE L.

*Erysipelas of the Head coming on during exposure to the disease in another person.*

ELIZABETH HUGHES, aged 28, was a nurse in the Clinical ward at the time when two or three patients went through severe attacks of Erysipelas, all of which had been treated by punctures. About the 11th or 12th of January, 1830, she began to feel ill with febrile symptoms, but it was not till the 17th that Erysipelas began to show itself upon her nose and right cheek. I ordered a great number of punctures, amounting to some thousands, to be made over the whole inflamed surface, and the bleeding encouraged by warm water in a sponge. Her symptoms were very severe; the febrile action ran high; the tongue was covered with a thick white fur: the pulse was active and strong; and there was much tendency to sleep, and much despondency of mind. The punctures were repeated at least twice every day: little or no vesication took place, and no suppuration in the eyelids. She took no medicine but the simplest salines and gentle purgatives till the 23rd, when, being convalescent, with a weak pulse and moist tongue, she began to take an infusion of the *Serpentaria*, with four grains of the Subcarbonate of Ammonia, three times a day.

## CASE LI.

*Erysipelas of the Head in a case of Syphilis and Miscarriage.*

ANN BAKER, aged 20, was under the care of the Surgeon on account of some syphilitic sores, and became the subject of erysipelas of the face. I was requested to see her on the 22nd of January, 1830, and found the inflammation of a bright red colour; the whole nose and both cheeks swollen and glossy; much febrile excitement and agitation of manner; tongue brown; hands tremulous. I ordered the head to be shaved and punctures to be made twice every day, and for medicine she took a mixture containing the carbonate and sulphate of magnesia. On the 28th she miscarried, and became very low, which rendered it necessary that she should take ammonia; but in the course of a fortnight she was sitting up quite convalescent.

## CASE LII.

*Erysipelas of the Head in a Paralytic Patient.*

GEORGE ORR, a man in the prime of life, for a considerable time under my care for paralysis of the left side and loss of speech, became the subject of Erysipelas of the face. On the 17th of January, 1830, after two days of febrile excitement, the inflammation first appeared on the right cheek, which was freely punctured; the head was shaved, and he took purgatives and the simple saline. The erysipelas was not prevented from extending over the whole face and scalp; the parts as they became affected were punctured twice daily. His strength had been previously so much impaired by illness that it became necessary, so early as the 19th, to give him a little mild support, in the form of beef tea, and to prescribe an infusion of *Serpentaria*, and before the end of the month a small quantity of wine with the addition of ammonia to the infusion; very little vesication took place on his face, which, however, desquamated freely, and he completely recovered, though his general condition of body was certainly more impaired than previously to the disease, and the chance of his ultimate recovery less if possible than before.

## CASE LIII.

*Erysipelas of the Head in a case of organic disease of the Stomach.*

WILLIAM COOPER, aged 57, was admitted into Guy's Hospital under my care October 8th, 1828.—He was greatly emaciated, and had been long labouring under a dysenteric disease, passing stools in which there was not the least tinge of bile, but with which much blood was mingled.—He was attacked November 24th with erysipelas of the face; became delirious, tongue brown, hands tremulous. He took Camphor Mix-

ture with Liquor Ammon. Acetat.—I ordered the whole inflamed surface to be pierced with numerous minute punctures, which bled pretty freely; and this was repeated four times during the next three days, with the greatest relief.—On the 28th he was much less agitated in his manner, tongue moist, and all his symptoms so much less severe, that in a few days he was completely convalescent; and it was rather remarkable, that for several weeks after, the state of his bowels was quite changed, so that the stools became abundantly tinged with bile; after a time, however, he relapsed into his former state, and died in the beginning of March with confirmed organic disease of the stomach.

#### CASE LIV.

##### *Erysipelas of the Head in a man much weakened by Disease.*

JAMES LINGE, a labouring man from the neighbourhood of Maldon, was admitted into Guy's Hospital under my care, October 8th, 1828.—He had suffered from ague between two and three years before, and had been since occasionally subject to the same complaint. He now wore a very unhealthy aspect, and a large tumour was distinctly felt in the situation of the spleen. He suffered much from general derangement of health and impaired digestion. The disease proved very obstinate; and in February he was suddenly attacked with febrile symptoms, attended by incessant sickness, which turned out to be a severe attack of small-pox. Having passed through this formidable disease, he was seized in March with erysipelatous inflammation of the right leg, which was treated by punctures; and to this followed immediately erysipelas of the face in a severe and dangerous degree; the punctures of the lancet were again freely used, and he ultimately recovered, and left the House on the 5th of May in tolerable health, though the spleen still continued enlarged and distinctly to be felt.

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I have thus detailed ten Cases illustrative of the mode of treating Erysipelas by punctures, which have not been selected on account of the success attending them, but rather as they present some variety in their circumstances, and may be considered a very fair specimen of such cases. I do not remember to have seen a fatal case where the punctures were used early and persisted in strictly. At the same time, I should be very sorry to be considered as advocating the infallibility of this or any other remedy: for no doubt cases occur which will prove fatal under any treatment; and as there is sometimes an insuperable difficulty in persuading the patient to submit to the use of this particular mode of treatment, it is satisfactory to know, that the majority of the cases of Erysipelas of the face and head do

well whether punctured or not, provided the treatment be tolerably judicious in other respects :—still, however, from a comparison of the cases which came within my knowledge before I had adopted this treatment, and those which have occurred since, I am strongly persuaded of its utility. It affords local ease, and checks the severity of the cerebral and general symptoms ; and if early employed, it prevents in a great degree the vesication, and, I think, diminishes the chance of suppuration in the soft and cellular structures, particularly about the eyes, where the formation of pus is very apt to take place. Provided the punctures are very minute, and not lengthened into small incisions, I have never seen them leave any permanent marks, even on the smooth skin of the forehead ; nor am I aware of any circumstances of inconvenience or danger which can be regarded as affording a solid objection to this practice. As, however, there is a possibility that the punctures may sometimes remain visible, it will be right to take particular care in puncturing the parts most exposed to view. It is not impossible that some peculiar condition of the skin,—as the early tendency to sloughing which is occasionally seen in erysipelas, or some unusual irritability,—may be found hereafter to contraindicate the use of punctures ; but if such cases do occur, they are rare, and have not yet fallen under my observation. Some caution should be used not to make the punctures deep ; and, after the operation has been performed, they should be carefully examined, to ascertain that none of them are bleeding too freely, for sometimes the branch of an artery may be wounded, and much blood may escape. This happened in Case XLVIII., where above eight ounces had already been lost, when, on visiting the patient again, I discovered the mischief, and had it speedily remedied. I would not by any means insist upon the necessity of having recourse to punctures in every case : on the contrary, I see many slight cases where I judge it right to spare the patient the irksomeness of the operation, which seldom fails to meet with some opposition ; but if, on the following day, there is reason to fear that the disease is extending, I always recommend it strongly.

## CASES

SHOWING THE CONNECTION OF PURULENT DISCHARGE FROM THE NOSE AND EAR, AND DISEASES IN THE CELLULAR STRUCTURE OF THE NEIGHBOURING BONES, WITH IMPORTANT AFFECTIONS OF THE BRAIN AND ITS MEMBRANES.

FROM the very intimate connection which exists between the delicate bony structures forming the cells of the frontal, temporal, ethmoid, and sphenoid bones, and the two great external orifices of the organs of sense, the meatus auditorius and the nasal openings, two sources of cerebral inflammation and excessive inflammatory irritation are established, which induce symptoms of the most alarming kind, and which sometimes terminate in speedy death; and sometimes by calling forth latent morbid actions, lay the foundation for more slow but not less certain mischief.

Cases in which the frontal sinuses and the ethmoid cells suffer materially, and communicate the disease to the brain, are less frequent than analogous cases involving the cells of the temporal bone, but they are met with occasionally in practice. In some cases of erysipelas of the face and nose I have thought the cerebral affection arose through this connection, and a very striking case was stated to me by the late Mr. John Pearson, in which he was called upon to see a child who, having had a slight erysipelatous affection of the nose the day before, was now the subject of delirium, and that child died on the following day in a state of coma. In a case which occurred to Mr. Toulmin of Hackney within a few months, (and of which the preparation is now in the Museum of Guy's Hospital,) after great discharge from the nose, the patient died from the supervention of cerebral symptoms; and after death suppuration was discovered to have taken place in the frontal sinuses, and a cyst full of muco-purulent fluid was found in one of the anterior lobes of the cerebrum; but whether this disease began in the frontal sinuses or in the brain is matter of some doubt. Cases of chronic discharge from the membrane lining the cavities of the nose, are indeed often seen; and when this continues long, and more particularly when injudiciously treated by mercury, the cartilages and the bones are apt to become affected, and sometimes the brain appears to sympathize.

With regard to the communication of disease from the cells of the temporal bone, or from the meatus auditorius to the brain, this is a much more



frequent occurrence, and one which arises as a sequel of continued fever, of scarlatina, and of catarrhal affections so often, that it must have fallen under the observation of almost every practitioner; and in the few following cases will be recognized some of the circumstances and some of the combinations under which this alarming disease has been seen. In its most simple form, it is characterized by a discharge from the ear of serous fluid, which gradually becomes puriform; and this is generally preceded by throbbing pains, which diminish greatly on the appearance of the discharge. After continuing a few days this may perfectly subside under treatment, perhaps without a symptom, except slight headache, which can lead us for a moment to look with anxiety on the result. In other cases, in conjunction with a discharge more or less copious, we have severe pain and deep-sounding noises within the head, followed by deafness and occasional vertigo; and still recovery may take place: or death occurring when these symptoms have nearly subsided, may disclose nothing like disease beyond the chamber of the ear and the cells of the temporal bone;—or the disease proceeding, more serious cerebral symptoms may be established, and delirium, convulsion, paralysis and coma, mark the concluding periods of life; while more extensive evidence of disease is to be traced in caries of the bones, ulceration and inflammation of the membranes, or destruction of the substance of the brain; and not unfrequently scrofulous tubercles, or fungoid tumours (according to the previous constitutional disposition of the patient), will have been excited during the inflammatory action of the membranes. It is not unusual to find a large collection of pus forming under the pericranium behind the ear; and thus the bone becoming extensively denuded; which generally depends on disease within the cranium causing the dura mater to be detached: so that in these cases we have the disease of the ear propagated to the dura mater, and this again producing external disease beneath the pericranium. I have however seen cases where, after discharge from the meatus, an abscess has opened itself immediately behind the ear, and bone has exfoliated and perfect cure has been effected with the loss of hearing on that side.

In the very early stages of these diseases, the inflammatory action admits of being moderated or overcome by general remedies, and by leeches, cupping, fomentations, and the injection of mild, warm, or astringent fluids; but the further it has proceeded, the less is it within the control of art; for when the disease is once set up in the delicate structure of the bones,



and the cells are filled with pus, processes of destruction and exfoliation must take place, which, under the most favourable circumstances and situations, require much time for their completion ; but when they are going on so near to important organs they cannot exist without the greatest hazard ; for the very membrane which serves as a periosteum to the bone can scarcely be injured without producing serious or fatal mischief in the brain. In these advanced stages I have generally found blisters the most useful remedies. Acid or other injections might be of service, but cannot be employed without risk in cases where it is impossible to define the extent of the injury. Mercurial fumigations are somewhat less objectionable ; and it is very probable that in some few instances relief would be afforded by the use of the trephine, at least in those cases where the mastoid cells are the seat of disease.

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The mildest cases of morbid discharge from the ear, of which the first five cases which follow offered examples, commence either gradually or sometimes more suddenly in the form of an unhealthy secretion from the meatus auditorius ; the natural secretion sometimes becoming more abundant, at other times more liquid, then fetid and puriform : and still the mischief does not appear to be more deeply seated than the follicular apparatus of the part. I could state several other cases of this kind which have occurred in children of a constitution prone to glandular disease and scrofula ; but the history of such cases has usually been preserved too loosely to be satisfactory, and would at last amount to little more than a statement of the fact, that the unhealthy discharge has taken place ; and, after a shorter or longer period, has been reduced or altogether overcome by mild local applications and by attention to the general strength. Several of the following cases have come on with symptoms so sudden and severe, that we might be led to ascribe the origin of the complaint to the formation of some small abscess, which however is very rarely the case ; and where an abscess does form, it must generally be situated in the follicles of the part, and external to the membrane of the tympanum, as that structure is often found complete after such discharge has continued for a long time.

## CASE LV.

*Gastric derangement, with Discharge from the Ear.*

SUSAN DALE, aged 15, was admitted under my care into Guy's Hospital, February 3rd, 1830, suffering under low fever with gastric derangement, and having a chlorotic aspect, probably connected with the non-appearance of the catamenia. On the 14th she complained of great pain in the right ear, followed on the 17th by a copious serous discharge, which in the course of two days gradually assumed a purulent appearance. In the mean time the pain subsided entirely, but a slight deafness was experienced for several days.

## CASE LVI.

*Purulent Discharge from the Ear taking place during Anasarca.*

JOHN WRIGHT, aged 34, was admitted under my care, January 13th, 1830, affected with anasarca, with coagulable urine. On the 3rd of February, after experiencing headache and much uneasiness, a copious discharge of puriform secretion took place from both nostrils, and from the meatus of the right ear; which continued for several days with deafness, and gradually subsiding without any remedies being applied immediately to the part.

## CASE LVII.

*Scarlatina accompanied by Discharge from the Ear.*

FEBRUARY 14th, 1830, I was requested by Mr. Cole to see a little boy, aged three years and a half, who was the subject of Scarlatina anginosa; the inflammation of the tonsils having extended and involved the larynx in such a way as to produce croupy cough and sonorous respiration: the glands of the neck were enlarged, and the eruption was still out over the surface of the body. Three days before, the headache with evidence of cerebral affection had been so strong, as to lead to the application of leeches to the temples: the following day, serous discharge had taken place from the meatus auditorius, which the next day became puriform. At the period of my first visit, the whole meatus externus of both ears was lined with little vesicles, like the glands on the iceplant; and the discharge, which was of a sero-purulent character, and so copious as to make large stains on the linen, had irritated the cavity of the external ear, which was inflamed and excoriated; the symptoms of head affection had disappeared;—gradually, as the child recovered from his formidable attack of scarlatina, the discharge from the ears was moderated by mild astringent applications.

## CASE LVIII.

*Scarlatina followed by Discharge from the Ear, with considerable Affection of the Head.*

MARY ANN PELLY, aged 27, was admitted into Guy's Hospital, under my care, July 8th, 1829, the subject of scarlatina with sore-throat, and complaining much of pain in the upper part of the head, extending towards the ears.

13th. Pain in the left ear, with some discharge.

Applicentur Emplastra Cantharidis pone aures utrasque.

17th. Has had a good deal of fever for the last few days, with rigors, and much pain in the head and discharge from the ear: pulse 125; skin hot.

Mistura Salina cum Vini Ipecac. ℞ xx sexta quaque hora.

18th. Applicetur Emplast. Cantharidis Nuchæ.

22nd. Experienced last night a return of shivering, and complains of a peculiar stupidity about the head.

23rd. Says she feels as if she were tipsy, and has been very sick this morning; but she is never in the least delirious, and has very little pain in the head; has a peculiar sensation like cramp in the left foot: the discharge from the ear has ceased.

Emplast. Cantharidis inter Scapulas.

The discharge from the blisters was kept open, the bowels were relaxed; she afterwards took gentle tonics, and was dismissed cured, August 13th.

## CASE LIX.

*Puriform Discharge from the Ear subsequent to Fever.*

PATRICK MULLEN, aged 24, was admitted under my care into Guy's Hospital, September 9th, 1829, with fever of nine days' standing. He went on perfectly well, and was so far convalescent on the 5th of October, as to be taking slight tonic remedies: on the 9th, at night, he experienced most acute pain in the right ear, and in two or three hours after a puriform discharge took place: a blister was applied behind his ear and kept open, and his bowels were regulated. The discharge continued till the 20th, occasioning little or no pain beyond the ear itself, in which he experienced a constant throbbing: on the 23rd he was quite well, except a stunning noise of which he complained in his ear, and he left the Hospital on the 28th, quite well.

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Such is the history of recent cases of this disease; the result of which, though always matter of some doubt, will usually be favourable where the

remedial means are promptly applied: a good deal will depend on the state of the constitution; and as very frequently affections of this kind, particularly in children, are connected with a weakly and scrofulous condition of the system, they will sometimes yield but slowly, and require a continuance of tonic remedies and residence at the seaside.

## CASE LX.

*Purulent Discharge from the Ear, and Accumulation of Pus beneath the Pericranium, succeeding to Fever.*

BENJAMIN BENNETT, aged about 30, was admitted into Guy's Hospital under my care, November 23rd, 1825, labouring under symptoms of fever, with a clammy mouth and a tongue covered with fur, brown in the centre: pulse 100; respiration 24; voice hoarse, and slight cough. It appeared that he was a sailor; and that three weeks previously, having been much exposed to the weather, he was first attacked with illness, for which he was twice bled, to the extent of sixteen ounces each time; that he was able to return to work; but on his arrival in London, a fortnight after his first attack, he suffered a relapse.

Applicetur Emplast. Cantharidis amplum sterno.

Habeat Julep. Mellis Acetat. cum Vini Ipecac. ℥xx sexta quaque hora,  
et Olei Ricini ℥iij statim.

24th. Bowels well opened by the castor oil; the cough and hoarseness increased.

Sumat Extracti Conii gr. v, cum Pulveris Ipecac. gr. j, ter die, et Repe-  
tatur Mistura.

Dec. 2nd. Much purged; tongue dry and brown; pulse 120; very hoarse.

R Hydrarg. cum Cret. gr. ij,

Pulver. Cretæ Comp. gr. x, M. Fiat pulvis bis die sumendus.

Linctus Opiatus pro re nata.

Applicetur Emplast. Cantharidis amplum sterno.

5th. Much febrile restlessness and heat of skin.

R Opii purif. gr. fs,

Antim. Tartar. gr. ʒ,

Hydrarg. Submur. gr. ij, M.

Fiat Pilula hora somni omni nocte sumenda;

Julep. Ammon. Acetat. cum Vino Ipecacuanhæ;

Extracti Conii gr. v, et Ipecac. gr. j ter die.

8th. Skin dry; tongue brown in the centre, and dry; countenance anxious; abdomen tender; pulse 108, weak; three dejections, of dark chocolate colour. He was ordered three or four ounces of wine and the infusion of *angustina*, with the aromatic confection, and to repeat the pills of *conium* and *ipacacuanha*.

9th. Bowels less disturbed; motions more natural.

10th. Dejections much improved: he rambles in the night; skin hot.

15th. *Habeat Infus. Serpentariæ cum Ammonia Subcarbonatis gr. v, quarta quaque hora, et Repetantur Pilulæ.*

16th. Countenance improved; tongue less dry and furred: three loose stools.

17th. Three or four feculent dejections: skin hot; tongue dry; pulse 128; respiration 32; voice hoarse: he lies on the left side; the cough very troublesome, particularly at night, with little expectoration; he wanders much at night, and is scarcely sensible by day.

19th. Bowels relaxed; is very weak; sores on the nates with lying. The wine to be increased to eight ounces.

*Repetantur Medicamenta, et Habeat Mistura Cretæ cum Confectione Aromatica si opus fuerit.*

20th. Countenance decidedly improved, but anxious: he takes much nourishment; motions much improved; temperature moderate; pulse 112; cough rather less troublesome; still hoarse; tongue cleaner and moister; he rambles occasionally.

26th. Infusion of *cascarilla* with aromatic confection every six hours.

29th. Has gone on gradually, though slowly, improving: voice less hoarse; sores not spreading; bowels still relaxed.

Jan. 2nd. Countenance natural, and almost free from distress: he still coughs at night, but his hoarseness is gone; tongue moist and clean; bowels more regular, but relaxed; appetite good; sores healing; pulse 96, soft; he has very little delirium at any time.

5th. He is sitting up, and is in every respect much improved.

9th. *Pulver. Ipecac. gr. j. Hydrarg. cum Cret. gr. ij bis die.*

17th. A quantity of pus is discharging from the left ear.

23rd. *Applicentur Emplastra Cantharidis pone aures.*

26th. Has complained for the last two days of pains shooting through the head.

Feb. 4th. The pains of the head improved; the discharge from the left ear continues.

*Infus. Cascarillæ cum Soda.*

6th. Complains much of the shooting pains in his head and ears.

*Applicetur Emplastrum Cantharidis Nuchæ et postea Unguentum Sabinae.*

22nd. An obvious puffy swelling has taken place behind the left ear, and he complains of much pain in the head.

Applicentur Cucurbitulæ Cruentæ inter scapulas, et detrahatur sanguis ad uncias decem.

Fiat Setaceum Nuchæ.

27th. Much febrile excitement and restlessness.

Mist. Camphoræ cum Liquor. Ammon. Acetat.  
et Tinct. Camphoræ Comp. ℞ xx ter die.

March 3rd. Pulse 100; the left pupil acts more sluggishly than the right: complains of no headache, but of much pain in the external parts of the head, increased by lying: bowels open; the swelling behind the ear continues.

6th. The swelling behind the ear much increased; a free opening was made into it, and five or six ounces of pus were discharged.

10th. The swelling has subsided, and he has experienced great relief; he complains of pain in the left temple; seton discharges well.

Pulver. Sarsaparillæ ʒj ex Decoct. ejusdem ter quotidie.

17th. In every respect greatly improved; little or no discharge.

29th. The discharge from the ear has latterly ceased entirely; the swelling behind the ear has filled again and been evacuated, affording much relief.

He remained under my care, gradually improving, till the 1st of May; when, as he considered himself quite able to resume his employment, I suffered him to leave the Hospital; not, however, without apprehension that any severe exposure might occasion a relapse.

In this case I have little doubt, from the formation of pus between the skull and pericranium, that the dura mater had suffered: still, however, the free evacuation of pus, and the establishment of discharges near the part, acted in the most favourable manner: and all the cerebral symptoms had subsided for some time before the patient left the Hospital: this may therefore be considered a very satisfactory case, as it holds out a favourable prospect, even when we have not succeeded in putting a stop to the disease in its earliest stages.

## CASE LXI.

*Discharge from the Ear, with disease in the Mastoid Cells and great Cerebral Irritation.*

JAMES JONES, aged 45, was admitted into Guy's Hospital, January 30th, 1828. He was a large loose-made man, of sallow complexion and inclining to corpulency.

He had suffered from ague eighteen years before, and had ever since looked sallow. He had been employed in hard labour as a navigator, and, according to his own account, had been subject to epistaxis for a year past; but he ascribed much of his present ill state of health to a severe blow which he received about ten months before, in the right lumbar region: about a week after which he experienced difficulty in passing his water, with lancinating pains towards the kidneys, and this had never completely subsided: but he was able to work regularly till three months before, when he was obliged to give up, on account of ulcers on his legs. For the last three weeks he had suffered a great deal from pain in the right side of the head.

Jan. 31st. Much epistaxis in the night, and his head is rather relieved; urine two pints, high coloured, not coagulable; he says it is occasionally quite white and full of shreds. The abdomen, over its whole extent, is projecting and hard; the upper part, as far as the umbilicus is harder than the lower: pressure about two inches to the left of the umbilicus gives pain in the region of the right kidney; pressure on other parts gives no pain; heartburn, but no sickness; constant headache, worse at night, and in the afternoon he says he often feels dizzy; he complains of deafness, and feels dull. Some attention was paid to the pain and supposed injury about the loins: but my views were turned more particularly towards the head; and in order to relieve the pain he was cupped between the shoulders, and blisters were applied behind the right ear. The epistaxis gradually subsided, and towards the end of February an old cicatrix on his leg ulcerated afresh. In the beginning of March a considerable draining of blood took place from the rectum; and about the middle of the same month the right ear began to discharge a quantity of puriform fluid; this gave great relief to his head, and his hearing improved.

April 11th. Still continues to discharge blood frequently from the rectum; and the puriform discharge from the ear, though not so abundant, has not ceased; but he was suddenly seized yesterday afternoon with giddiness of the head, which is at this moment to a most alarming degree: as he lies in his bed he constantly cries out—"I shall fall—I shall fall—The bed is turning round—I shall fall." I scarcely ever saw such an expression of terror evinced: pulse 80; countenance pale. I immediately ordered a large blister between his shoulders; and the infusion of roses with sulphate of magnesia to be given frequently.

13th. The giddiness has continued, but has to-day become less oppressive: pulse 68.

14th. He complains of pain on the right side of the head, above the ear and temple: the giddiness is much better; the discharge from the ear is very abundant: pulse 72, moderate; his bowels do not act freely.

*Repetatur Mistura secunda quaque hora.*

16th. Cannot walk without support; bowels very open; the blister discharges freely.

18th. Still some giddiness, deafness, and discharge from the ear. These symptoms continued for some time; blisters were repeated, and tonic remedies were had recourse



to on the 12th of May. There was still a discharge of blood and pus from the ear, and he felt giddy whenever he stooped; urine clear, light-coloured, and not coagulable. He remained in nearly the same state, with occasional variations in his disease, till the month of October, when some of his symptoms became aggravated.

Oct. 13th. The ears have lately ceased to discharge; and since that, pus and blood have frequently passed from his nose, and sometimes been coughed up from the fauces; he is quite deaf in the right ear, and complains of dimness in the right eye.

17th. Frequent discharge of blood and pus from the nose; headache and giddiness on stooping; with a sense of dullness, and of confusion in vision.

22nd. Universal tremor, with great weakness and dizziness: pulse full and frequent.

Mittatur sanguis ad  $\frac{3}{4}$ x.

24th. Pulse 72; blood not buffed; his general feelings much relieved, and the tremor going off; frequent epistaxis.

Nov. 1st. Constant sickness, and occasional bloody vomiting.

3rd. Urine dingy, as from the admixture of blood, and coagulating by heat: pulse 72; respiration difficult.

4th. Shivering and sickness; some pain in the forehead and wandering of mind: abdomen tender.—He died the following day.

#### SECTIO CADAVERIS.

The dura mater was in every part healthy: the arachnoid unusually strong, but only slightly and partially opaque; and there was no serum effused beneath it. The substance of the brain was throughout in a state which is best designated by the term flaccid, for it was not softened or broken down, but wanted firmness; and when the upper portion of the hemisphere was sliced off, it bent in all directions. The ventricles contained rather more fluid than natural. The right ear, from which the discharge had taken place, was very carefully examined. The membrane lining the external meatus was thick, soft, and vascular; and within the membrana tympani the same condition was observable; but all the bones of the ears were still in their natural position. In the mastoid cells there was undoubted disease, but it had not proceeded very far; the cancellated structure was soft, and seemed as if a thick semipurulent matter were deposited throughout, without having completely broken down the cancelli.

The lungs were pretty generally adherent to the ribs, but were in other

respects healthy. Heart rather large ; its muscular substance of a drab colour and very flaccid. The valves as well as the aorta healthy. In the abdomen between two and three pints of clear serum were effused, in which were formed several membranous bags, cutting like solid jelly, but consisting, like the vitreous humour of the eye, of serum held together by membranous bands. There was no appearance of vascularity on the intestines themselves, or any part of the peritoneum ; the intestines much contracted ; the peritoneum covering the liver was opaque, and glued in some parts by strong and lengthened old adhesions to the neighbouring viscera and diaphragm. The surface of the liver granulated ; the structure in many parts undergoing a change from the deposit of a yellowish substance. The spleen four times its natural size ; firm, but not obviously diseased in structure. The mucous membrane of the stomach in a highly granulated and scabrous condition. The kidneys very large and flabby, with a slightly mottled and speckled appearance on their external surface. The bladder healthy, containing about half a pint of dingy urine.

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In this case, the unhealthy condition of the spleen, the liver, and the other viscera, sufficiently accounts for the general sallow, unhealthy appearance ; and probably the derangement of these parts might be traced as far back as the occurrence of the ague : over-labour and exposure in a person thus predisposed, brought on that unhealthy condition of all the mucous membranes which displayed itself by so many obvious symptoms, and which, affecting the membranes of the ear, extended its influence to the brain. The symptoms of cerebral derangement were certainly more than could be well accounted for by the appearances after death ; but, on a review of the whole progress of the disease, there can be little doubt of the connection between the discharge from the ear and the cerebral irritation which, there is every reason to believe, went on to actual inflammation of a slow and mild character in April, at the time the vertigo became so alarming, when the symptoms did not subside for a month ; and it is probable that the membranes of the brain again suffered in a similar manner in October, when the symptoms of head affection again became very prominent.

## CASE LXII.

*Long-continued Discharge from the Ear, with much Cerebral Affection and the separation of the Pericranium.*

JEREMIAH SULLIVAN, aged 30, was admitted under my care into the Clinical ward, Nov. 4th, 1829; by business he was a tailor, and formerly much addicted to gin-drinking, but was always a healthy man until last December, when he caught a severe cold and cough: about a month afterwards had jaundice and hæmoptysis with drowsiness, but with no pain of the abdomen or chest: these complaints were relieved by bleeding and the use of the subacetate of lead: a slight cough and occasional shortness of breath remained, with a copious, clear, and viscid expectoration. In the beginning of July he suddenly awoke one night with excruciating darting pain entirely confined to the right side of the head, and more particularly above and behind the ear, and over the mastoid process, accompanied with a thin brown discharge from the ear, which, two days afterwards, took on its present puriform appearance, and has been gradually increasing: five weeks ago, while walking, he was suddenly taken with an inability to proceed in a straight direction, falling towards the right side; cupping and a seton in the neck relieved him for a time, but the same symptoms returned about eight days since, and he now finds difficulty in walking straight across the ward, but experiences no diminution of strength in the limbs of the right side; his sight has become dim, and he has a sharp pain over his eyes on attempting to read; complains of something shaking in his head, when he moves it suddenly, and has difficulty of depressing the jaw from the pain it occasions him. He at present complains of passing restless nights; and occasionally suffers acute pains in the head; he has still some cough, but the respiratory murmur is distinctly audible all over the chest: pulse 90, and regular; tongue furred; bowels regular; discharge from the ear copious, and of a healthy pus.

Applicetur Empl. Lyttæ amplum pone aurem,  
et Ung. Sabinæ postea.

Habeat Infus. Cascarillæ cum Soda ter die.  
Haust. Sennæ statim.

5th. Did not return to the Hospital until this morning; says the pain in his ear prevented his sleeping at all last night; bowels freely relieved by the draught; got wet through yesterday, which has increased his cough: pulse 88; pain of the head very severe.

6th. Was prevented sleeping during the early part of the night by his cough; the pain of his head has not been so severe; bowels have not been opened; discharge from the ear in very large quantity: pulse 76; tongue clean.

7th. Has considerable cough, which increases the pain of the head; the ear less painful; bowels freely relieved.

Julep. Mell. Acet. cum Vin. Ipecac.  $\mathfrak{m}$  xx ter die.  
Applicetur Cataplasma Sinapis pedibus.

8th. The pain removed from behind the ear and over the mastoid process, to the right temple; cough less troublesome; feet always cold.

9th. Passed a sleepless night; pain over the right side of the head very acute all night; discharge from the ear very copious; bowels open; cough troublesome, with no expectoration.

10th. Pain more acute, occupying all the right side of the head; blister discharges well; complains of pain in his knees; pulse 84; bowels not relieved; tongue clean; slept better; cough less.

Extr. Coloc. Comp. cum Cal. gr. xv statim.

The pain, with occasional unsteadiness in the walk, continued, the discharge from the ear rather increased, and the pulse rose to 92; blisters were applied to the neck, the head was shaved, and cold applied. On the 23rd, a consultation was held with Mr. Morgan on the propriety of making some opening to discharge pus, which might probably be collected in the mastoid cells; but as he did not judge it prudent, we determined to defer it for a few days, when it was found that a large quantity of pus lay under the integuments behind the ear; a free opening was made; a considerable extent of bone was discovered to be denuded of the pericranium; and the pus, which was lying on the bone, was discharged. This gave great relief to his general symptoms of irritation, and was followed by a favourable change in the state of his internal fauces, which had become greatly swollen and inflamed, almost preventing him from swallowing. The discharge from the incision, as well as from the meatus auditorius, continued to be very profuse.

Dec. 4th. Had been attacked, during the night, with erysipelas, extending from the wound over a large part of the face, closing the eyes; he complained of no pain in the head, but great soreness on being touched; pulse 116, hard and incompressible; tongue furred; urgent thirst; bowels open; perspired freely during the night.

The whole of the inflamed parts were minutely punctured with the point of a lancet, two or three thousand punctures being employed; these bled freely. In the evening, the swelling of the face was greatly abated; he had no headache or increased fever. The following morning the erysipelas was found to have extended: pulse 92; tongue furred; great discharge from the ear. The punctures were repeated as freely as before. On the following day, the 6th, the face still much swollen, and the erysipelas extending down the back; he complained of stupidity, and a difficulty in understanding questions put to him; no pain in the head; pulse 120, small; bowels open; tongue

thickly coated with a moist brown fur. The punctures were repeated on the face as freely as before. No other application was used; and the erysipelas of the face went off completely, leaving no suppuration; and, in a day or two, no disfigurement. It proceeded, however, along the back, almost to the loins; and in those parts punctures were partially employed, an attempt being made to put a stop to the progress of the inflammation by puncturing very carefully the outer margin of the erysipelas for nearly an inch in width; but, on the following day, the margin had advanced completely beyond this line.

8th. Feels drowsy, and has in some degree lost the hearing of the left side; and, on blowing his nose, finds that air passes from the ear; pulse 116, with more power; less discharge from the right ear; no headache.

17th. Slight pain in the head; his sight is becoming very weak; cough increased; pulse 100.

19th. Has been sleeping heavily all night, and breathing very loudly; more pain of the head; bowels not open; pulse 108, sharp; cough severe, accompanied by expectoration of tenacious and puriform mucus.

21st. He answers questions incorrectly, appears unable to collect his thoughts, or apply his words as he wishes; pulse 96, with some jerk. Towards the evening, the unsteady state of mind increased to complete wandering, and then to actual delirium. In this state he continued the whole night; and on the following morning lay apparently senseless and incapable of being roused, moaning and making a loud groaning noise; there was no convulsion nor paralysis; the tongue was dry and brown.

In this state he was taken by his friends from the Hospital, to prevent the possibility of an inspection.

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Although, in this case, we were deprived of the satisfaction of tracing the extent of disease after death, the history is sufficiently instructive; leaving no room to doubt of the connection of purulent discharge from the ear with important cerebral disease. The denuded state of the cranium seems to indicate that diseased action was taking place between the dura mater and the bone; and this conclusion, which is in accordance with the observation of the most experienced, will be found corroborated by three or four cases shortly to be related in the present volume, (see the cases of Mary Keen, of William Prichard, of John Burton, and of R. W.) in which the circumstance of the pericranium being detached from the skull attended upon affection of the dura mater, when that membrane had likewise been separated from its natural attachments.

## CASE LXIII.

*Scrofulous Tubercles in the Brain, with Purulent Discharge from the Ear.*

MARY KEEN, aged 4 years, was brought to Mr. Walter Dendy, (to whose kindness I am indebted for the notes of the case,) with a purulent discharge issuing both from the meatus and from an ulcerated opening behind the pinna of the left ear.

The child had for some weeks suffered acute pain in the ear; with remitting discharges of pus, often sanguineous. This was accompanied by partial loss of hearing on that side. The sleep was disturbed by startings, watchfulness, and frequent moanings. She had rigors and flushes, and all the marks of low irritative fever. There was a direct ulcerated communication between the mastoid cells and the meatus, the probe passing into that canal from the diseased opening, and also grating against carious bone in various directions. The pulse was 110, quick and wiry; the skin hot; the tongue coated: she complained of deep pain in the head, and extreme tenderness on pressure. She was sometimes slightly convulsed, but the pupils were perfectly sensible to light.

Leeches were applied round the part thrice, and the acute pain subsided: she took a laxative daily; a sudorific mixture three times a day; and small doses of calomel and compound Ipecacuanha powder at night. In about ten days, the febrile symptoms having disappeared, small doses of muriatic acid in infusion of Cascarella were given. A bread-and-water poultice was applied every four hours. Her health improved very much under this treatment, and hopes were entertained that in a day or two the carious bone, which was become slightly loosened, might be detached; when she suddenly grew worse, became frequently convulsed, and died.

## SECTIO CADAVERIS.

The integuments behind the ear being divided, a ball of dead bone was easily detached from a perfectly carious cavity, formed partly of the mastoid cells and the meatus auditorius. The probe was easily passed into this diseased structure, touching the dura mater; into the cavities of the labyrinth; and also into the Eustachian tube. On detaching the calvaria, in which were innumerable bloody points, the dura mater appeared extremely tense; but there was no effusion beneath it, nor were its vessels preternaturally turgid. The hemispheres of the cerebrum were more firmly adherent than usual; and the left lateral and the petrosal sinuses were filled with firm coagula. There was little serum in the ventricles. Close to the left ventricle, imbedded in the substance of the cerebrum,



was a tubercle of the size of a walnut, which was removed almost without dissection: the fore part of the cerebellum under the tentorium was discoloured of a purplish hue, and at this part was another tubercle, apparently beginning to suppurate. (Plate XIII. Fig. 3. & 4.) In the dura mater lining the temporal bone were two ulcerated holes of the size of a pin's head: and on stripping off this membrane, its outer surface was coated with small purulent patches; and on each side of the petrosal process was a carious opening of considerable extent, communicating with the carious cavity before mentioned.

The above case is interesting as an example of scrofulous tubercle probably excited, in the brain of a child predisposed to such a disease, by injury in the ear and the mastoid cells; and showing the connection of disease beneath the pericranium with disease going on in the corresponding part of the dura mater.

#### CASE LXIV.

*Fungoid Tumour in the Brain, in a case of Disease in the Ear with Purulent Discharge.*

JAMES BOLIETHO, aged 42, was admitted under my care into Guy's Hospital, September 9th, 1829: he spoke of his illness as having begun six months before, part of which time he had been an out-patient at the Hospital: his symptoms resembled in most respects those of Phthisis pulmonalis, though still there was something in his pallid look which differed a little from that disease: he likewise laboured under a profuse discharge of fetid pus from his left ear, with much pain in his head: he was almost constantly confined to his bed, though occasionally he walked across the ward. Nothing remarkable occurred till the 26th of September, when he was seized about 6 o'clock in the evening with a convulsive fit, affecting his face, eyes, mouth, and limbs, and he lay in a senseless state for above half an hour; his right hand continued convulsed with a constant starting motion the whole of the night. On the 27th he never spoke quite coherently, but seemed to know those around him: the discharge from the ear was very great. He continued deranged in intellect the whole of the 28th, and had one or two returns of convulsive seizure. In the evening he became so violent as to require restraint. On the 29th he was still constantly raving and singing: pulse 108; no paralysis of the limbs, but some slight indistinctness of speech.

Oct. 2nd. Since yesterday evening he has been more collected; and though still in a state of great imbecility, he answers rationally, and talks of having had wandering and foolish dreams:—the discharge from the ear considerable and fetid. It is worthy of remark, that since the convulsive attack he has scarcely expectorated at all, nor has his cough appeared so troublesome as before.



5th. Has had no return of the fits for two or three days, and has been much more collected; but great imbecility of mind remains: expectoration puriform tinged with blood: complains of pain above the left ear frequently shooting towards the forehead: pulse 120, very weak.

9th. No return of the fit, and he speaks much more naturally: his bowels relaxed.

15th. Quite sensible and collected; and his chief complaints are, complete deafness in the left ear, and constant distressing cough, which is greatly increased the moment he attempts to lie upon the right side: bowels much relaxed; pulse 96, weak: he makes great complaint also of the pain in his left side, which he refers chiefly to the lower part of the chest.

30th. Complains much of the pain in his left side: there is a chain of very hard glands about the size of large peas to be traced down the side of the thorax from the left axilla: he speaks a little thick, but is perfectly sensible, and says that sometimes when he falls asleep he wakes up in great alarm.

Nov. 9th. He emaciates greatly, his right leg is rather œdematous: his expectoration is great, and he says it tastes very sweet in his mouth: he compares it frequently to the taste of roasted apples, which he says it exactly resembles: in appearance the matter expectorated varies a little, being more or less ill-conditioned, and sometimes it is fetid.

15th. He manifestly becomes thin; and says that sometimes on turning quickly he seems to lose his sight for a moment.—He died the following morning.

#### SECTIO CADAVERIS.

Great emaciation: a chain of hard round glands of the size of peas and small beans situated on the outside of the chest, following the course of the thoracic artery.

The dura mater healthy, and not unnaturally adherent to any part either of the skull or of the arachnoid. Considerable effusion beneath the arachnoid. The arachnoid not opaque, and separating easily from the convolutions, which were quite natural in their appearance. On taking a slice from the two hemispheres nearly on a level with the roof of the ventricles, a fungoid tubercle of the size of a small chestnut was brought into view, situated in the middle lobe of the left hemisphere, close to the cortical part: indeed, from its very slight connection with the surrounding parts, it seemed rather imbedded in the fossa of a convolution than in the substance of the brain: it had however formed for itself a bed in the brain, though its only attachments appeared to be to the pia mater and arachnoid, from which it was evidently growing. The colour of this tumour was brownish-

yellow: it appeared formed of two, three, or more masses; hence assuming a botroidal shape: when cut into, it was softer towards its centre, and presented some yellow spots, of a brain-like substance. (Plate Fig. 2. & 3.) In other respects the brain was healthy, but was unusually free from vascularity; and even round the tumour itself retained its natural consistence. On detaching the dura mater from the petrous portion of the temporal bone, it was evident that the bone was of a rather darker colour than natural, inclining to a greenish tint, though the dura mater was as firmly attached to it as usual; and on cutting out a portion of the bone, all the internal ear and the cellular texture of the temporal bone and mastoid cells formed one diseased mass filled with pus.

The pericardium contained two or three ounces of fluid with some coagulable flakes. The heart was flabby, small, and light-coloured, and contained fluid blood. The right lung had in its apex several hard contracted portions, apparently the puckerings of tubercles which had discharged their contents; and in the centre of these knotty masses were small bony or chalky deposits. The lower lobes of that lung were sprinkled with miliary tubercles; but a large proportion of the whole was permeable by air, and tolerably healthy in structure. The left lung adhered by a most solid and cartilaginous union to the parietes of the chest, so firmly at the upper part, as to be partially torn in the attempt to remove it: but the cartilaginous covering was strongest toward the base, where it surrounded both the convex surface and that which rests upon the diaphragm; and in some parts was half an inch in thickness. The apex of the lung was formed into a large putrid cavity, irregular, broken, and ragged; and this extended into the lower lobe. It was quite obvious that the deposit in this case was of the fungoid rather than of the phthisical character, and exactly corresponded with the whiter tumour in the case which will follow.

The liver contained several fungoid tubercles, globular bodies from the size of a pea to that of a small chestnut, white and very hard in their texture: in the left lobe these were most numerous, running into each other. The glands on the small curvature of the stomach were affected with the same fungoid disease, as were those about the pancreas; but that organ itself was perfectly healthy. The spleen, kidneys, and renal capsules were free from disease.

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This case bears a strong resemblance to that of Sidney, which I shall

immediately detail. From the beginning, the symptoms of phthisis were recognized as bearing a somewhat peculiar character; and of late the small hard glands which had been discovered on the outside of the chest, had led to a suspicion that the disease had assumed a fungoid character: this however could only be matter of conjecture, as the expectoration resembled in every respect the unhealthy pus of extensive phthisical disorganization. From the constant increase of cough and expectoration when he lay upon the right side, I had entertained no doubt that the chief mischief was upon the left side, and that the pus gravitating from that part gave rise to the increased cough.

The affection of the ear was not evidently connected with the fungoid disease within the skull; yet it is most probable that the irritation which it produced in the neighbourhood was the exciting cause of the disease in the brain. The situation of the tumour in the cortical portion of the brain will perhaps account for the fact that no fixed paralysis attended its existence, but that symptoms of irritation prevailed at one period to so great a degree.

#### CASE LXV.

*Fungoid Disease of the Brain, followed by a yellow softening, resembling imperfect Suppuration, in the surrounding cerebral substance.*

JOHN SIDNEY, aged 33, was admitted into Guy's Hospital, under the care of Mr. Bransby Cooper, June 4th, 1828, on account of an enlargement of the testis, of a fungoid character, said to have originated from a blow received by a rope two years before; but within the last five months only had it excited much attention, and he appeared to make light of the pain it occasioned. He was a plumber by trade; and though a slight-made man, was remarkable for his bodily strength. He had been married for the last six years, and a year-and-a-half ago his wife had been brought to bed with twins.

About eight months previous to his decease he supposed that he had contracted a very bad cold with cough; and about that time suffered severe hæmoptysis, which continued at periods till a month before his death, when it ceased till the day he was admitted into the Hospital: on which occasion, from over-fatigue by walking from Burton Crescent to Holborn, the hæmoptysis returned, but only for a day. He suffered much from shortness of breath; and about four months previous to his death was attacked with most excruciating pain from the front part of the right side of the chest, shooting up to the shoulder on that side. From the commencement of his illness he was subject to distressing sickness, apparently induced by the severity of the cough; and this had subsided with the cough about a month before his death.

For several months he had suffered much from earache on the right side : and during the last five months his wife had observed a peculiar motion of his eyes in his sleep ; and he was apt to make such singular noises, with such jumping of his limbs, in the night, as often to induce her to wake him. For two or three months he had complained of slight feelings of numbness in the right hand and leg, and the right side of his head : and for a month before that time he had been so much worse generally, and so weak, as to be quite unable to work ; frequently lying on his bed for hours together.

About ten days before admission into the Hospital he complained of very severe pain in the right knee, and great debility : and this subsiding the following day, he then first experienced severe pain in the head ; pain so severe as to oblige his wife to rub his head for hours together, particularly at night, while in the day he was usually more free from pain, but was very drowsy. The pain never affected the back of the head, but always the forehead, and chiefly the right side. He had no affection of the sight, of the speech, or of deglutition, before admission ; but for the last ten days his limbs on the right side had become more and more feeble, and he was obliged to have a good deal of assistance from his wife as he walked towards the Hospital, his knee often giving way under him.

At the time of his admission, the power of his right side was much impaired, but he had not suffered any seizure or fit as far as was known : he walked up the stairs by himself, and for that day and the following walked several times along the ward : two or three times however, while he was sitting on the bench, he nearly slipt to the ground, owing to the weakness of his right side.

I was first requested to see him on the 6th, on account of a continual sickness under which he suffered : his face was slightly affected with paralysis, and the left corner of his mouth was drawn up. The right leg and hand were quite useless : his countenance was dull, with a vacant stare : he understood the questions I put to him ; but I learnt that since he had been in the House he had seemed to wander occasionally in his mind : his pulse was feeble, and his flesh soft.

*Habeat Julepum Ammoniae sexta quaque hora.*

*Applicetur Cataplasma Sinapis Scrobiculo Cordis.*

To have soda water for drink.

7th. Sickness much abated ; in other respects as before.

*Hirudines duodecim temporibus,*

*Repetantur Medicamenta.*

8th. *Applicentur hirudines decem temporibus.*

11th. He appears evidently losing power from day to day, and takes but little nourishment.

14th. He remains dull and stupid, as before; tongue dry, but not furred: the loss of power in the right side amounts to complete paralysis both of sense and motion.

*Applicetur Emplast. Cantharidis pone aures. Repetantur medicamenta.*

16th. The arm, and leg quite powerless, without spasm, falling lifeless when raised and let go again: he lies in a helpless state upon his back, with a vacant stare, evidently understanding what is said, and trying to show his tongue, which he does very imperfectly: deglutition has been difficult; pulse 72, weak; skin pale, soft and flabby.

*Infusum Gentianæ Comp. cum Tinctura Zingiberis.*

He died on the following morning, after passing a restless night with much moaning, and some movements which were called convulsions, but in which there was no rigid flexure or extension of the limbs.

#### SECTIO CADAVERIS.

General and great emaciation. On raising the skull, the dura mater appeared free from all inordinate vascularity: the brain beneath, even while the dura mater remained, felt soft, which was more particularly the case with the left hemisphere. Removing the dura mater, a small portion of bone about the size of a grain of barley was formed on the arachnoid at the back part of the head, lying in the direction of a vessel. No unnatural vascularity showed itself on either side, but the convolutions of the left hemisphere were perfectly flattened; and the whole, but more particularly the posterior part, gave the sensation of a bag or bladder full of a semifluid substance, and it fell by its own weight so as to project over the sides of the divided skull. The whole brain was carefully, but not without difficulty from the danger of laceration, removed into a basin with the base and cerebellum downwards; and then a crucial incision was made by introducing a director into a small orifice which had been broken through in the posterior part, in the attempt to remove the brain. It was now found that the pia mater and arachnoid formed with the cortical portion of the brain a thin wall, which was easily thrown back in the posterior part, displaying the cerebral substance reduced to the colour and nearly to the consistence of custard, and allowing of being opened so as to show a globular mass of a semitransparent pink colour tinged with blood, which at its posterior part had in its substance some clots of blood not larger than a pea. (Plate VII. Fig. 1.) On removing the

brain to the level of the ventricles, the tumour was found forming a solid oval mass, somewhat lobulated, from which the yellow custard-like brain fell almost of its own accord, leaving in some parts a very thin coat of brainy substance, attached in the form of a cyst. The tumour did not in any part enter the ventricle; but the brain was softened and yellow quite to the ventricle, so that its parietes had collapsed by their own weight, and were supported only by the fine membrane which lines the cavity. The optic thalamus on that side was slightly softened, but of its natural colour: the choroid plexus was pale. An attempt was made to obtain a section of the brain and the tumour together in a perpendicular and longitudinal direction, but the attachment of the tumour was so slight that it was impossible.

The tumour was next removed, and a section of it was made, cutting off about one third of its outer part. (Plate VII. Fig. 2.) It was now evident that this tumour was of exactly the same character as those which will presently be noticed as found imbedded in the lungs; but it was only the outer part which bore the firm form and red colour of those tumours: the central and upper part was composed of a semitransparent soft substance, which, when broken down a little by its own weight, resembled thick paste: this appeared, particularly about the edges nearest to the concave surface of the tumour, to be pervaded by many vessels: but I requested Dr. Roget to examine it by his powerful microscope, and he did not discover any vessels. I was anxious to ascertain likewise how far this gelatinous substance might be merely medullary matter broken down, and therefore requested Dr. Bostock to examine it: and he reported "that it did not possess the specific characters of cerebral matter; but that on the contrary it very nearly resembled albumen in a half coagulated state, being pretty soluble and pretty diffusible in water, and forming a fluid which much resembled some of the serous effusion, except in its consistence and mechanical properties." The concave surface of the tubercle when the white semifluid was removed, looked uneven as if covered with granulations: one or two large vessels with unusually thick coats were seen entering the tumour; and in one place three or four small cavities appeared which looked like vesicles, but might possibly have been nothing more than the transverse sections of vessels. The left hemisphere was quite natural; nor did the most careful and minute ex-



amination show a single trace of similar disease in any other part of the cerebrum or the cerebellum.

On raising the sternum, the anterior part of the lungs came into view pervaded by fungous tumours, six or seven appearing immediately, which were round, reddish-brown, and rather flattened by the ribs. (Plate VIII. Fig. 1.) The right lung was found to adhere so closely at the apex, and indeed over a considerable portion of its extent, that the upper part in particular was much lacerated in detaching it from the ribs. The same was the case to a less degree on the left; and both lungs were so completely studded with tumours, that probably not half of each lung was pervious to air. On the right lung were seen two very large, round, fungous tumours, not less than a man's fist: one tore down into a ragged mass by being removed; the other was going into a state of softening, and presented on its surface a contraction of the cellular membrane like a scar: other fungous tumours, from the size of a large egg to that of a marble, a pea, and even a grain of mustard-seed, were distributed through the lung. The left lung had likewise a large round tumour at the apex, attached so firmly to the ribs as to be much lacerated in its removal. At the bottom of this lung a tumour had poured out blood so as to form a clot of more than half a pint, situated between the lung and the diaphragm.

On making a section of the smaller tumours, they were solid throughout but spongy in their texture: in some parts a vesicular structure seemed developed; but it was rather doubtful whether this did not arise from transverse sections of vessels and spongy thickened cellular membrane. The colour of these tumours was red, as if loaded with blood.

The large tumour in the right lung, which appeared to be in a state of softening, bore a different character from the rest: when cut into, it was like the others spherical, but lobulated and white, and apparently going into suppuration, much more resembling a cerebriiform mass than the other fungous growths. (Plate VIII. Fig. 2.)

I carefully examined some part of the lung, and discovered this fungous disease in its earliest state, when it seemed only like a red semitransparent matter effused into ten or twenty little meshes of the cellular membrane, forming red masses of a hard consistence less than a small shot. At this time there seemed little or no tendency to break away from the substance of the lung; but as they grew of the size of a pea, and became more red



and more perfectly globular and consolidated, they were torn pretty easily from the lungs, particularly after a little maceration. The testis on the right side was of ten times its natural size, and composed of cysts of a fungous character. The liver was not diseased; the kidneys and the spleen and pancreas healthy. The glands of the left groin were rather enlarged and hard, but on examination this appeared to arise from disease of a scrofulous character, and in the centre were small lumps of a white earthy deposit.

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This is a case remarkable for the extent to which three very important organs had become the seat of fungous disease. It appeared to have begun in the testicle, then to have attacked the lungs, and lastly to have affected the brain. The symptoms of disease within the head had not shown themselves till about five months preceding his admission into the Hospital. On looking back to the history of the case, there is reason to believe that for several weeks after the commencement of the cerebral disease, the symptoms were confined to such as indicated irritation and pressure from the morbid growth; and that not till within three weeks of his death had the more active developement of the fungoid tumour or some other circumstance paved the way for that mischief which terminated in the disorganization of a large portion of the brain surrounding the original disease.

#### CASE LXVI.

*Inflammation of the Sinuses of the Brain subsequent to a discharge from the Ear, with extensive Disease of the Lungs and Heart.*

JOHN BURTON, aged 37, a thin man with rather light hair and complexion, was admitted into Job's Ward, November 12th, 1828; and had been in the Hospital at the time of his death only a week and one day.

He was by trade a baker, and had led a very dissolute life, having left his friends and gone into the army. He had, it was believed, suffered from the venereal disease, and lost a portion of his palate; but no one knew of any local contrivance having been adopted to supply its place. At the time of his admission he appeared worn down by suffering, referring his pain chiefly to the head; and the account given was, that about seven weeks before, he complained of great pain in the right ear; that roasted onions and other applications were made; and one day while at his work, some bloody matter discharged, and he found much relief: after that the left ear became affected much more severely, but in the same way as the right. Though very ill, he married

only three weeks before his admission: he became worse in health; so that for seventeen nights before he came to the Hospital he was in such a state of wandering and delirium with pain in the head, that persons were obliged to sit up constantly with him. The answers which he gave when in the Hospital were frequently incoherent, but during the day he was tolerably tranquil; he was able to help himself out of bed, and two days before his death sat by the fire-side. As the evening came on, his mind always began to wander, and he disturbed the ward almost the whole night by the incoherent noises he made and his restless behaviour. Two days after his admission it appeared as if an abscess had burst in his ear, and much unhealthy purulent matter was discharged;—this afforded him some present relief: the pain, however, continued severe, attended both by incoherency of mind and a kind of childish imbecility, which led him to cry as he answered questions put to him respecting his health.

The treatment adopted had reference to the state of his head, and almost entirely consisted of leeches to the temples and blisters to the nape of his neck, with careful attention to the state of his bowels.

#### SECTIO CADAVERIS.

The muscles of the most vivid colour of health. A large sloughing abscess behind the left ear. When this was cut down upon, the bone underneath was found denuded of pericranium, and rough and slightly discoloured by the dark offensive slough and pus with which it was in contact. On removing the calvaria nothing unnatural came into view; and on raising the dura mater a very small quantity of fluid, but quite distinct, lay between the dura mater, or at least the arachnoid lining the dura mater, and the arachnoid covering the brain. This fluid moistened the finger, and was slightly unctuous.

Brain healthy in its substance; with about twice the healthy quantity of serum in the ventricles, which were obviously distended, more particularly the posterior cornua. The cerebellum on its left side was marked almost as if the end of the finger had been pressed against it: the depression was permanent, and a stripe of a quarter of an inch in width was to be traced proceeding forwards, where the colour of the cerebellum had been rendered gray. These marks were found to correspond with marks upon the dura mater, and it now became obvious that the lateral sinus and the petrosal sinus were filled with dark ill-conditioned pus; and this ran up to the sella turcica, filling both the cavernous sinuses, and the circular sinus round the sella tuncica, so that the pituitary gland was surrounded by pus. The depression on the cerebellum was caused by a portion of the dura mater con-

tiguous to the sinus, which was raised by a small collection of pus beneath it.

Following out the jugular, it was found that upon the same side it was full of unhealthy green pus till it joined the subclavian ; and that its coats were thick, opaque, and green, with a deposit of fibrinous matter : even in the opposite jugular vein the clot of blood was not quite healthy in its appearance, but the vein was not obviously diseased.

In removing that section of the basis of the skull in which the inflamed sinus was situated, the cavity of the pharynx was opened, and a singular gray mass sodden with unhealthy pus was discovered at the upper and back part. On examination this turned out to be a mass of lint, which had by its appearance been in its present situation many weeks, and was in a most fetid state. The membranes of the nose were not unhealthy.

Raising the sternum, the cellular membrane of the mediastinum was found full of semipuriform fluid. In the left cavity of the chest were marks of recent and severe pleuritis in every part with a thin coating of coagulable matter inclining to form a thin honeycomb membrane : this extended also over the pleura covering the pericardium. The lung itself was pervaded by several small sloughing abscesses ; of which three or four, of the size of a hazel-nut, occupied the lower lobe so externally as immediately to come into view : these were surrounded by a thin cyst, and filled with dark olive-green putrid matter : the surface of the lung above them was of a yellow colour, in a well-defined spot ; there were others deeply imbedded in the substance of the lung, and one or two near the apex in the upper lobe : the lung around these sphacelated abscesses was very nearly healthy. The right lung was also in a similar state : but here the most extraordinary sphacelus had taken place of the pleura costalis, and of a quantity of false membrane which had been deposited upon it. The whole of the fourth, fifth, and sixth ribs presented internally one dark green mass dreadfully offensive in smell.

The pericardium contained some turbid serum ; and a complete coat of recent coagulum was deposited both upon the close and reflected surfaces. The reflected surface was closely marked beneath the thin new coating with fine red specks ; and even this new inflammation seemed to have come upon an old false membrane, left by former attacks.

The abdominal viscera were sound.

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In this case the overwhelming extent of disease was such that, coming into the House but eight days before death, all diagnosis seems to have been confounded: nor is it easy to trace the connection between the different morbid appearances: but it appears possible that the unhealthy condition of the membranes of the ear, and the inflammation of the veins and sinuses in the neighbouring parts, owed their origin to, or were at all events greatly aggravated by, the irritation of the corrupt mass of lint discovered in the pharynx. All the symptoms which were most obtrusive arose from the mischief in the head; and there can be little doubt that the recent disease in the chest was of a later date than that in the head. It was however plain that former inflammation, both of the pleura in the right side and the pericardium, had prepared the way for the disease of the lungs and heart which was the immediate cause of death.

In this case the reader will doubtless trace some analogy to those facts brought forward by Mr. Arnott in his ingenious paper on the secondary effects of inflammation of the veins, published in the *Medico-Chirurgical Transactions*, and will perhaps consider it as in some degree corroborating his views.

## ADDITIONAL CASES

ILLUSTRATIVE OF THE EFFECTS PRODUCED ON THE MEMBRANES OF THE BRAIN  
BY INFLAMMATION.

### CASE LXVII.

*Arachnitis in an intemperate man with excessive Irritability.*

GEORGE CAIN, aged 37, was admitted into Guy's Hospital, in a state of delirium, late in the evening of February 27th, 1830. He was at that time quite manageable, though unable to give an account of himself: he was in a profuse perspiration, and his pulse was hurried.

Habeat Extracti Hyoscyami gr. v. quarta quaque hora, et Misturam Salinam.

28th. His delirium increased greatly towards the evening; and his bowels not having been relieved, he was ordered a powder of jalap and calomel, and was afterwards to take twelve drops of the black drop.

March 1st. When he first came under my care, he had been in a state of violent agitation during the night, and was then restrained in bed with a strait jacket: his pulse was frequent; his manner was quick; his eyes turned rapidly from object to object, but were not suffused with blood; his tongue moist, and slightly coated: he was perfectly incoherent, but made no violent efforts to free himself from restraint.

R Extracti Hyoscyami, gr. v;

Hydrarg. Submuriat. gr. ij;

Fiant Pilulæ quarta quaque hora sumendæ.

Radatur caput, et applicetur Embrocatio communis.

2nd. He has passed a noisy sleepless night, and is still much agitated. It has been found impossible to trust him without the restraint in which he was placed: his bowels have not been opened.

Repetantur Pilulæ, et habeat Mist. Sennæ ad alvi solutionem.

3rd. His bowels were freely opened by the senna, and he slept from seven o'clock till eleven yesterday evening; he has also had good quiet sleep in the night and this morning: pulse 80, soft: the jacket is untied, but he is still so unsteady that it seems dangerous to leave him without the means of restraint.

Repetantur Pilulæ.

5th. His improvement has been progressive, and he is now walking about the ward in perfect tranquillity: his mouth has become sore from the calomel, which has been

regularly administered every fourth hour. He is now so collected as to be able to give an accurate account of the circumstances of his present attack. It appears that he has been a servant, and addicted to drinking, and has been latterly out of place: for some days before his attack he had occasionally felt, while in the streets, momentary aberrations of mind and peculiar nervous feelings: but three days before his admission to the Hospital, just after he had taken tea at the house of a friend, he felt very nervous, with a sudden confusion of mind, so great that he scarcely knew what he was doing, and at the same time a profuse perspiration broke out over his whole body and ran from his face: he went home and lay down in his bed: he was then seized with a violent tremor, and fancied the room full of persons come to injure him. He thought he was accused of some crime, and was about to be executed; and when brought to the Hospital he had no doubt he was going to prison: and the same train of imaginary evils and difficulties continued to harass his mind till at a certain hour on the 3rd, when almost suddenly, though but a short time before he had been as much under the influence of his fears as ever, he became rational, and aware of every thing around him.

His mouth was sore for some days: he continued the use of the hyoscyamus and took the camphor mixture, and his convalescence was uninterrupted.

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This case illustrates in a powerful manner the beneficial effects of purging, mercurials, and the cautious use of narcotics; together with cold applications to the head in a particular class of inflammatory affection of the membranes; and in this respect is quite analogous to Case VIII. (page 23,) and Case XXX. (page 79,) in this volume, except that in the other cases bleeding was had recourse to, though with doubtful good effect; while in the present case the disease was removed without bleeding.

### CASE LXVIII.

#### *Arachnitis with close adhesion of the Pia Mater to the Brain.*

THOMAS OWEN, aged 22, was admitted into Guy's Hospital, February 17th, 1830, labouring under febrile symptoms, with cough: at that time there was nothing particular which excited alarm as to his state. On the 20th the chest affection increasing, he was ordered to lose a little blood, and on the following day a blister was applied to his chest; but it was not till the 26th that his head began to excite anxiety. On the 27th it was shaved, and cold water was constantly applied; but on the following day he fell into a state of complete insensibility, moaning and groaning continually; his eyes nearly closed, his head drawn back upon the pillow; his right arm and leg in constant convulsive agitation: his left side, though not paralytic, yet comparatively motionless: his skin was hot; his pulse quick, and his face flushed. In this state he

lay perfectly senseless, and growing more and more comatose, till about two o'clock in the afternoon of the 2nd, when he died,—having thus lain senseless for a space of seventy-two hours.

#### SECTIO CADAVERIS.

On raising the calvaria, much blood ran from the divided vessels of the dura mater, particularly at the posterior part; and the longitudinal sinus was full of fluid dark-coloured blood. Raising the dura mater, nothing like effusion was seen beneath the arachnoid; but the pia mater was rather vascular, and all the convolutions considerably flattened. The arachnoid and pia mater did not appear to have lost their natural transparency; but when an attempt was made to raise them from the brain, it was found almost impossible, owing to strong adhesion between the pia mater and the brain: and when the membrane did separate, it drew with it a complete thin unbroken layer of the cineritious substance which thus formed an even coating to the internal surface of the membrane. (Plate I. Fig. 5.) This state was most strongly marked on the upper part of the brain, but in some degree it existed in every part. The ventricles contained at least three ounces of limpid fluid. The lining membrane did not appear unhealthy; the choroid plexus was pale. At the base, and in the loose cellular matter about the pons varolii, some serum was effused. The substance of the brain was not particularly vascular, but the cortical substance seemed rather soft.

The left lung was slightly hepatized, and the pleura thickened, vascular, and covered with an adventitious coating, evidently of rather recent formation. The other viscera were free from marked disease.

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Although it is by no means uncommon to find the pia mater either partially or over its whole extent more than naturally adherent to the brain, yet we very rarely see cases in which the pia mater and the cineritious substance are so inseparably bound together as in this instance: and I thought the effect was in this case increased by a morbid tendency in the cineritious substance to separate.



## CASE LXIX.

*Arachnitis with effusion of Pus in the Pia Mater.*

WILLIAM LOWE, aged 56, in appearance older than he was stated to be, his hair being quite gray, and his teeth chiefly gone from the front,—for the last year or two he had been less active in mind than formerly, being frequently listless and drowsy and his memory failing. He had for the last seven months taken a share in a public-house, where it was believed that he had drunk a great deal, though, as he was never easily affected with liquor, he had not been intoxicated.—On the 3rd of March in the afternoon he complained of being shivering and unwell, and had an attack of purging and vomiting. He went to bed early; and on the 4th lay in bed greater part of the day, but refused to see any medical man. He never made complaint of his head, but lay in a listless powerless manner, saying that he was better: still, however, it was obvious that he was very ill, and his affection of the stomach and bowels continued.

On the 5th, a more convenient bed on a lower story having been prepared for him, he was able in the evening to dress himself, and with some assistance to come down stairs; and desired not to have a fire lighted, as he was quite warm enough. He lay down in bed, covering himself with the clothes, in a state of apathy; and it was not till eleven o'clock that night that Mr. Robert Dunn first saw him. He was then apparently suffering fever with cerebral congestion: tongue dry and brown; he was unwilling to answer questions; pulse oppressed; but no complaint of headache; and as the stomach and bowels were so much deranged, attention was directed to them. As the night advanced he became more and more dull and stupid; and when Mr. Dunn saw him at seven o'clock on the morning of the 6th, he was completely comatose. Fourteen ounces of blood were immediately taken from the arm, but this afforded no relief.

March 6th. I first saw him at half-past eleven o'clock. He then lay on his back, senseless and nearly motionless, with his legs extended: the left arm was however bent nearly at a right angle, and there was a very slight tendency to contraction and convulsion in the fingers, while the right hand lay by his side; and though he had evidently power of moving it, yet when raised it fell rather lifelessly down: his breathing was frequent, and each respiration accompanied with a blowing sound: face flushed; his skin was hot, and tending to perspiration; pulse not remarkably slow, but rather weak; tongue, lips, and teeth appeared dry, but we could not induce him to open his mouth; abdomen tumid and slightly tympanitic: he had had no stool. He seemed quite insensible, and incapable of being roused. The blood drawn in the morning had scarcely separated, but was covered with a thick size, and looked like one mass of badly clarified jelly, filling the whole vessel.

Applicentur Cucurbitulæ cruentæ temporibus, et detrahatur sanguis ad ʒxiij;  
 Applicetur Empl. Cantharidis Nuchæ; et Embrocatio communis Capiti;  
 Injiciatur Enema purgans statim.

7 P. M. Scarcely any change; but he was a little more capable of being roused, and after much pressing and pushing about his face, answered an indistinct negative to one or two questions respecting any pain he might suffer: he did not open his eyes, and when they were open the pupils were inactive. When I put a spoonful of fluid into his mouth he evidently made an involuntary effort to swallow, which was manifest both from the sound and the motion of the larynx: but so much coughing and choking followed, that I was afraid to repeat the experiment.

Applicentur Cucurbitulæ cruentæ Nuchæ, et detrahatur sanguis ad ʒviij.

He died at one o'clock of the morning of the 7th.

#### SECTIO CADAVERIS.

Raising the dura mater, no effusion of serum was found; but beneath the arachnoid was seen a layer of puriform lymph, covering the whole superior surface of both lobes, and half enveloping the large vessels. This appearance extended, but in a less degree, to the lateral and inferior surfaces of both hemispheres of the cerebrum, and to the superior surface of the cerebellum: and a little of the same appearance was likewise traced at the base. The arachnoid and pia mater were raised from the brain with most unusual readiness, but could not be separated from each other, and tore easily: the yellow puriform matter was not fluid, nor did it seem to have any tendency to escape; it was effused amongst the vascular network of the pia mater; certainly none was external to the arachnoid, and the lower surface of the pia mater, when detached from the brain, looked like a membrane having numerous vessels upon it; and no trace of pus remained upon the brain, which was left without any appearance of vascularity or of laceration. (Plate X. Fig. 1.)

The effusion did not extend to the pons Varolii, nor to the medulla oblongata or spine, as far as we were able to trace it down through the foramen magnum. In the ventricles rather more fluid than natural was found, and it was slightly turbid. The substance of the brain healthy.

The liver was light-coloured, mottled, soft, and unctuous. The mucous membrane of the stomach was decidedly thickened, and granulated at its pyloric extremity, which was of a very dark gray colour, as from subsided inflammation.

## CASE LXX.

*Effusion of Pus under the Arachnoid.*

J— M— was admitted into Guy's Hospital, October the 15th, 1828, with a Psoas abscess opening externally on the left side of the loin, just above the crest of the ilium. He was perfectly sensible, and had the free use of his hands and arms; his legs were however extremely weak, so that when taken out of bed he never attempted to walk. For two or three days previous to his death he complained of unusual drowsiness, for which he said he could not account; and he experienced sickness, which he stated to the nurses; but he was not so ill as to excite particular attention: and on the afternoon of the 22nd his sister took tea with him at five o'clock, without considering him unusually out of health, except as regarded his drowsiness. At six o'clock,—that is, only about nine hours before his death,—he was suddenly seized with loss of consciousness, general convulsion of the limbs, and jactitation in a violent degree; and this was followed by confirmed insensibility: he was still capable of swallowing, and he did not vomit what he drank: he gradually fell into a state of complete coma without stertor, and died at three o'clock on the morning of the 23rd.

## SECTIO CADAVERIS.

When the calvaria was removed and the dura mater raised, a few very fine hair-like adhesions were observed between the arachnoid and the dura mater; but the whole of the surface of the brain beneath the arachnoid was seen covered with a thin layer of pus, filling the spaces between the convolutions more particularly. This was distributed pretty equally over every part of the surface, both superior and inferior; and amongst the irregularities of the base, particularly the surface and depression of the medulla oblongata and cerebellum; and a considerable quantity ran out of the spinal theca. On the surface of the brain it was undoubtedly placed beneath the arachnoid. (Plate IX. Fig. 1.)

The spine was opened throughout its whole length: and the pus was found covering every part when the theca was removed, and was distinctly traced as far as, and apparently beyond, the orifices which permit of the nerves passing out, through several of which a probe passed directly into the psoas abscess.

In the lateral ventricles of the brain rather more serum than natural had collected: it was perfectly clear and limpid; and on the plexus were a few of the ordinary vesicles.

On opening the chest, the left cavity was found filled with a dark grumous fluid, on which oil was floating. The lungs on both sides slightly affected with tubercles. The heart healthy ; but about two ounces of clear fluid in the pericardium.

On further examination, it was found that the fluid which occupied the left cavity of the chest proceeded from the stomach, and had passed by two irregular openings, each nearly as large as a half-crown piece, through the diaphragm. These openings were situated in the posterior part of the diaphragm, not far from the spine, and to the left of the opening for the passage of the œsophagus ; they showed no marks of surrounding vascularity or thickening, but looked more as if eroded by some solvent. The surface thus eroded was of a dark colour, somewhat tinged with altered or grumous blood : the space affected was more extensive on the lower side opposed to the stomach than on the other : the muscular fibres of the diaphragm were left quite bare on both sides for a greater space than the actual opening, and indeed one small orifice, besides the two large ones, passed between the muscular fibres. Corresponding to these openings in the diaphragm, was one in the stomach itself, of greater extent, occupying a large portion of the cardiac extremity, through which the other parts of the stomach were easily everted : this had contracted no adhesions with the diaphragm or any other of the surrounding parts ; there was no thickening about the edges, but the whole stomach was unusually thin, and the edges of the ruptures were gradually attenuated : one patch less than a sixpenny piece near the opening was discoloured, looking like a patch of ecchymosis.

The liver was rather mottled ; and that part of the left lobe which had come within the influence of the rupture was discoloured by the contact of the dark matter ; and the spleen, which was tolerably healthy, was in like manner discoloured at its upper extremity.

None of the fluid from the stomach had found its way into the abdomen.

In the pelvis were a few ounces of clear yellow fluid, in which were floating some yellow membranous coagula. To the left side of the pelvis were observed some flocculent adhesion, or rather fringes, which were exceedingly vascular and beautiful, floating in the serum.

The abscess, which had made its way by a large unhealthy ulceration in the loins, near the crest of the ilium, communicated with a cavity in the psoas muscle and the iliacus internus ; both which were excavated to a

great extent; the cavity was filled with rather thin yellow pus, and lined with a soft yellow membrane, friable like a coagulum from the pus: this abscess followed along the left side of the spine above the diaphragm: the bodies of one or two of the lumbar vertebræ were rendered rough, and a probe was found to pass with the greatest ease from the abscess, through the orifices by which the nerves pass out of the spine.

When this case occurred, I was inclined to regard it as a direct effusion of pus from the abscess in the loins; for the cerebral symptoms had been so inconsiderable that I understood they had scarcely excited observation; and there was distinctly a communication to be traced between the abscess and the spinal cord by the openings through which the nerves made their exit from the spine. Still, however, the improbability of pus being made to pass from the loins to the brain, and there to effuse itself so generally over the surface of both hemispheres, appeared so great, that it was very difficult to adopt the opinion: and since the occurrence of the case of Lowe, I have been inclined to think that my first impression might have been erroneous; for though Lowe's symptoms were decidedly more severe than those of the other patient, yet they were of the same character, and were not sufficient to induce the friends to apply for medical assistance till the day before his death, although the family medical man was attending two or three times daily in the house. The symptoms which were chiefly remarkable as occurring in both cases, were, sickness at the stomach, and drowsiness, which went on to complete coma in both. In Lowe, the convulsive action of the limbs was trifling, if any; but in the other case it was violent, which might probably depend upon the extent to which the spinal cord and the medulla oblongata were implicated. It is probable that the precursory febrile symptoms were less observed in J. M., from the circumstance of his previously labouring under a chronic ailment, liable to vicissitudes; whereas Lowe was supposed before to be in a state of health; and as a proof of the rapid progress of the fatal symptoms, and the occasional difficulty of distinguishing them in the most severe attacks of inflammation of the arachnoid and pia mater, when tending to the speedy effusion of pus and coagulable lymph, I may refer to the first and even to the second case in this volume; and I shall also insert in a note, a case lately published by Dr. Tweedie\*.

\* "ISAAC COMBER, ætat. 60, (silk weaver,) admitted on the 18th July, 1829. This man passed through a

Still, however, the apparently sudden supervention of symptoms leaves room to doubt whether the pus in the case of J. M. might not by possibility have found its way from the abscess in the loins. It is certain that there appeared to be a direct communication between the abscess and the spine, and that the pus ran in considerable quantity from the foramen magnum, where the medulla oblongata was separated from the cord: the pus was also of a more fluid character than the puriform lymph which filled the pia mater in the case of Lowe, and resembled in appearance the fluid parts of the contents of the lumbar abscess.

With regard to another part in this curious case,—the extensive erosion of the large extremity of the stomach,—it appears probable that this took place either after death or very shortly before dissolution; and may be ascribed to a more early or complete extinction of those vital powers which enable the part to resist injury, than of those which promote the actions and secretions necessary for digestion; and this case bears so singular an analogy to one which occurred in the Belfast Hospital, that I shall make no apology for introducing it in a note, as given in Dr. James Johnston's Journal, for November 1828.\*

very mild form of fever, and was convalescent six days after his admission. After remaining a week longer in the Hospital, during which he had regained his strength, he was preparing to return home in the course of a day or two. On the 30th July, however, he relapsed, though there was no organ specially implicated. He had frequent rigors; his pulse was 96; skin hot, and the tongue furred. His bowels not having been opened for 24 hours, a purging draught was administered, which he rejected by vomiting. Pills, containing calomel and cathartic extract, and a purgative glyster ordered. Next day, his pulse was 84; he had not slept, and seemed very restless and uneasy, tossing about in the bed, and moaning incessantly; yet when questioned, he said he was free from pain; he had no delirium; his bowels had been once freely moved. A purging mixture ordered; the glyster to be repeated in the evening.

He died early on the following morning.

*Dissection.*—The dura mater was healthy. Between the arachnoid and pia mater a quantity of thick yellowish lymph was deposited nearly over the whole surface of the brain and cerebellum. The cerebral substance was marked by numerous bloody points, and in some parts presented large discolourations, of a claret hue. At the basis of the lateral ventricles, which contained three ounces or more of clear serum, about a teaspoonful of puriform matter was found in each cavity. The membranes of the spinal canal were affected in the same way as those of the brain, but the cord appeared healthy. The right lung was very vascular, and partially hepatized. The left side of the chest was healthy. The spleen was soft, and the rest of the abdomen appeared natural. (See Clin. Hist. of Fever, by A. Tweedie, M.D.)

\* A man was knocked down in a scuffle, and was carried into the Belfast Hospital, labouring under symptoms of compression; and he died the next morning. On dissection no fracture of the skull was found; although there was an external wound on one of the temples: an almost continuous coating of coagulated blood was visible on the pia mater covering the upper surface of both hemispheres. There were about two ounces of bloody serum at the base of the brain; on opening the abdomen, Dr. McCormac detected perforations in the cardiac extremity of the stomach to an unprecedented extent. The thorax being previously



The extent and situation of the effused blood in this case corresponded most precisely with those of the effused pus in the case which has called forth these observations: and it shows with what facility and in how short a time a fluid passes over the whole extent of the pia mater; thus furnishing an additional ground for doubt respecting the source of the pus in this singular instance.

opened, a pint of reddish fluid was found in the right cavity; and Dr. M'Cormac traced the mode of its introduction through a hole in the diaphragm, large enough to admit his finger to pass into the stomach. This hole had a black sphacelated and ragged appearance round the margin. There was erosion, but not perforation of another portion of the diaphragm. This erosion was two inches in diameter, the peritoneal and pleuritic coats being nearly obliterated. The perforations in the stomach were two principal, and some smaller ones; the first were about three inches in diameter, having irregular indented edges, with filmy prolongations of the peritoneum. The mucous membrane round the perforations was blackened and partially eroded. These perforations corresponded with the alterations of structure in the diaphragm, but there does not appear to have been any adhesion between the diaphragm and the stomach.—(See Med. Chir. Rev. vol. x. p. 221.)



## CASES

### ILLUSTRATIVE OF THE EFFECTS OF INFLAMMATION IN THE SUBSTANCE OF THE BRAIN.

#### CASE LXXI.

*Ulceration of the surface of the Brain, subsequent to an injury of the Pericranium.*

R. W., a healthy man, nearly sixty years of age, of an anxious disposition, and whose mind had lately been much harassed, fell over a heap of stones as he was walking in the street at night, and scraped the side of his left temple and his eyebrow slightly. He put a little common dressing upon it and went to bed, but in the morning found it very painful. He used the ordinary mild remedies, and in a day or two thought little more about it, although his eye was black for some days, and a swelling of the size of a damson had taken place under the superciliary ridge. He took no further measures, but pursued his occupations as usual. About three weeks after the accident he went several miles into the country to enjoy a day of shooting; was wet through, ate a hearty dinner, got into a coach and drove back to town. His head during this journey became so painful, that when he came to the stones he was obliged to place himself in such a posture as would protect him from the jolting. He became chilly; and on arriving at home, at seven o'clock in the morning, was already the subject of decided fever, with quick pulse, hot skin, and dry tongue; complaining much of pain in the head, which he spoke of as local, spreading from the eyebrow towards the vertex on the left side, and shooting sometimes towards the temple, with an occasional pain down the cheek. He was bled from the arm, leeches were applied to the part, and remedies given to allay the general febrile excitement. I saw him first on the following day, when his symptoms remained much as before: he complained of profuse perspiration; and when he sat in bed so as to expose himself at all, a kind of febrile chill, though not a rigor, was experienced; his pulse sharp, and rising often to 120. His manner was rather agitated; his night had been greatly disturbed, and he spoke of the horrid torments he had undergone during it in his head: he said "it was like animals creeping and scratching,"—that "it was a concert:" and he was evidently, from his manner, a little delirious. There was manifest puffiness above the eyebrow, as well as a tumour below in the socket of the eye. Leeches and fomentations were repeated; calomel and other purgatives administered. In the evening a slight discharge of pus came from the tumour under the eyebrow, which he said gave him great ease.—Another very disturbed night, followed with delirious imaginations, and pain of a peculiar wearing kind, of which he spoke with great horror, in the part of

the head before mentioned ; but he had no general headache : the opening still discharged a little, and we now requested Mr. Brodie to see him, which he did in the evening, and thought it right to dilate the opening, and cut down upon the bone just above the superciliary ridge, where he found the bone denuded and rough. Not above three drops of pus came away, but the patient expressed himself so much relieved that he was quite in heaven. Poultices and fomentations were constantly applied, and things continued much in the same way for some days ; always more or less increase of pain and inclination, from time to time, and for a few moments, to wander during the night. The general fever, however, subsided much ; but he always said, " It feels to me as if there were something still to come away where you made your incision ;" and he always expressed a most singular, and as we thought a fanciful, satisfaction when the wounds were opened by the introduction of the probe ; and although no matter was discharged, he always said he felt in heaven. The nights were still disturbed by distressing perspiration ; the pulse seldom above 84, always irritable ; tongue white. After a few days Mr. Brodie connected the two openings, giving a more free vent to the pus, which was apt to collect, though it was never in any considerable quantity. About this time,—that is at least a fortnight after the first incision was made,—he began to complain of a very tender spot on the forehead, about two inches from the brow, in the direction of the temple. This was obviously puffy, and rose in a day or two like the swelling which follows a blow. After a few days Mr. Brodie detected fluid confined, and cut down upon it ; when about five drops of pus came away, and the bone was found to be denuded and rough. In a day or two after, another spot, more towards the centre of the forehead, puffed up and was tender ; but it was never necessary to cut down upon that. From day to day very little change could be seen, except that the symptoms varied a little ; with more or less confusion of mind, twenty-four hours seldom passed in which we did not hear of something of the kind : on one or two occasions his state resembled very much a slight attack of delirium tremens, his manner agitated, and his mind harassed by imaginary difficulties. One night he could scarcely be persuaded that a large black man was not in his room, and he desired the following night with evident anxiety to have him turned out, and begged not to be left by himself : and the following morning he told us, as if perfectly aware that it had been a delusion, that he was better, for the black man had not been to him. Another day he was under great apprehension that we were going to send him away to a lunatic asylum, and in a childish, querulous, agitated, and unnatural voice besought us not to do so,—at least not to send him away that evening : then within half an hour he became rational, and said he felt as if he were becoming childish. He often seemed in his manner a little childish, sometimes assuming a forced playfulness. On one or two occasions he said he felt as if that side of his head were drawing him to the earth ; and on another, that he felt a wish to get out of bed and throw himself from

the window. For several days he got up regularly for a few hours, his pulse often so weak as to lead to a fear in some of his attendants that he was sinking : at other times the pulse good. His walk, if he attempted it, was unsteady, but he never spoke of giddiness or actual headache : the light seldom gave him any uneasiness. During part of his illness he was a good deal harassed by a catarrhal cough, to which he was subject in the winter ; and this for one or two nights disturbed him greatly, and was the cause of his no longer getting up.

November 1st. His tongue was a little more dry than usual, and his appetite worse.

2nd. A slight erysipelatous blush was perceived on the left eyelid, which nearly closed the eye ; by the evening this had extended to the size of a wine-glass over the forehead ; the next day it occupied all the left side of the face and nose ; some vesication also took place on the cheek and nose. By the 4th, the erysipelas occupied the whole face and ears, and vesication came on the forehead. The loose skin under the angle of the jaws became puffy ; he never experienced rigors ; he appeared to have less hurry and confusion in his manner, and spoke very sanguinely of his head being more easy, and the original disease much better since the erysipelas had come on.

5th. He seemed desponding about himself ; but the erysipelas was not worse, though it had become rather pale. In the evening his voice was tremulous, and as the night advanced some approach to coma came on. When I saw him at eleven o'clock on the 6th, a great change had taken place in his condition since the afternoon preceding. He was becoming comatose, but could still put out his tongue, and opened his eyes to look at me ; there was however frequent subsultus all over. The coma increased : the difficulty of expectoration when he coughed was evidently greater. Towards the afternoon I perceived the fingers of the right hand to be convulsively half-clenched, and he sunk at seven o'clock on the 7th.

#### SECTIO CADAVERIS.

Some serous effusion in the cellular membrane of the scalp. The bone was denuded only to a small extent, about the size of a sixpenny piece, where the second opening was made ; but the surrounding bone, more particularly between this opening and that which had been made upon the superciliary ridge, was unusually brittle, splintering in various directions under the saw and the chisel. The pericranium just round the denuded bone was thickened. The dura mater was not detached, but a deposit of organized membrane, nearly as thick as the dura mater but more flocculent, had taken place between it and the bone in that part, over an extent of the size of a crown piece ; and a mark remained upon the bone where the deposit had chiefly been, of an

irregular form, with white specks as if from adventitious matter deposited in the pores of the bone. When the dura mater was raised, its internal surface showed also a flocculent deposit, and the whole surface of the brain exhibited the arachnoid raised by serous effusion so as to conceal the convolutions; the arachnoid was slightly opaque; but on the edge of the anterior lobe of the left hemisphere, close to the falx, was an ulcer of the size of half a hazel-nut, oval, depressed, and containing a small quantity of turbid white fluid, of puriform character; and when this was removed with a sponge, a clear depression became visible, as if a piece of the brain had been cut out. The brain itself did not appear unhealthy, but the blood was rather fluid in the vessels divided in the cerebrum, giving bloody points. In the ventricles, was at least double the ordinary quantity of serum, and that rather turbid. The choroid plexus was natural, nor was any other obvious deviation from health to be discovered.

The lungs exceedingly healthy, with the exception of a little bronchial irritation. Heart in its whole structure and its valves perfectly healthy.

Liver pale-coloured; spleen, kidneys, and other organs, all healthy.

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Although I have brought this case forward as an instance of ulceration upon the surface of the brain, I am by no means inclined to suppose that the chief symptoms depended upon this circumstance. On the contrary, I think it probable that they arose much more from the morbid action going on in the pericranium and the dura mater; and that the more immediate cause of death was the erysipelas, which we were prevented, by peculiar circumstances, from treating by punctures. At the same time it is reasonable to suppose that the ulceration of the cineritious substance must have had some influence in modifying symptoms, and I ascribe in my own mind the peculiar aberrations of mind, and the convulsive action of the right hand, to the cerebral mischief; for the former was of a character unlike what is observed from injuries such as occurred in this case to the dura mater; and the occurrence of convulsive action in connection with disease and irritation of the surface of the brain, is somewhat in accordance with what has been observed in other cases, as I have already said (page 46), when treating of some injuries sustained by the cineritious substance.

## CASE LXXII.

*Ulceration of the Surface of the Brain, and Effusion of Blood within the Dura Mater.*

A MAN of colour, between fifty and sixty years of age, was admitted under my care into Guy's Hospital, labouring under very severe dyspnœa, with considerable mucous expectoration, and dropsical effusion into the cellular membrane both of the legs and arms: the legs were particularly swollen. It appeared from the accounts we could gather that he had been long ill in this way, and had been lately sent away from one Hospital on account of the noise and disturbance he made during the night. It was impossible to get any connected history of his present feelings, for he was exceedingly deaf, and at the same time in a state of drowsy stupidity, while he appeared to be sinking under the accumulation of mucus in the lungs. Blisters were applied to his chest, and some diuretics employed: he rallied a little, but was never able to leave his bed: he passed his urine and feces very generally in bed, and was quite helpless, except to raise himself by the rope hanging from the bed; and when I visited him, I almost always found him lying on his back in a drowsy state, but quite capable of being roused, though, owing to his deafness and his apparent dullness of comprehension, I could seldom get an intelligible answer to any question I put. In the nights he generally became noisy; not only his cough and stertorous or choking breathing becoming worse, but he frequently was much excited in mind, and talked and swore at the patients, who never considered his mind in a sound state. About four days before his death he seemed to be sinking gradually: his pulse, however, always had considerable volume and a peculiar sharpness, though his extremities were often very cold: his speech was observed to be more thick and indistinct even than before: there was obviously loss of power in the right cheek, and he seemed unable to put out his tongue when I desired him, though he made the effort the day before his death, which occurred on the 8th.

## SECTIO CADAVERIS.

On removing the dura mater, a thin layer of effused blood of several inches in extent,—in some parts as thin as paper, in others in flat masses as thick as a shilling,—was discovered on the posterior part of the left hemisphere, and on the anterior part of the right; this was not effused so as to be smeared over or to discolour the arachnoid, but remained attached to the dura mater, and could be peeled off as if the thin clots of which it was composed were contained within a membrane; but whether this was only a fibrinous envelope of the clot, or an actual membrane, was doubtful. I inclined to the latter opinion. On examining the base of the brain, both

of the anterior lobes were found to be eaten by superficial ulceration in three or four irregular patches of the size of a shilling, which were yellow and excavated to the depth of the eighth of an inch, though the yellow soft matter could scarcely be considered as true pus. (Plate XIII. Fig. 1.) The vessels of the base were not perfectly healthy, but in different parts contained cartilaginous deposits. On the surface of the medulla oblongata was a curious black carbonaceous deposit, following somewhat in the course of vessels, which, judging from some other cases, I believe to be the remains of a former effusion of blood under the arachnoid or upon its surface.

The left lung was partially adherent to the pleura, containing much gray matter, natural in structure, but loaded with serous effusion. The bronchial tubes of the deepest red colour, and much dilated towards their extremities. The right lung much more generally adherent, and extensively hardened, from old and chronic inflammation; so that scarcely any part performed its functions: the upper lobe in particular was a hard tough gray mass, and the bronchi were still more diseased than in the left lung. The left ventricle of the heart was very thick; the valves healthy; the aorta dilated along its whole course, and diseased with cartilaginous deposit through the greater part of its extent.

Several pints of clear yellow fluid in the abdomen. Liver rather granular externally, internally the acini light-coloured. Spleen small, little more than two ounces in weight. Kidneys small, contracted, scabrous externally, with the white deposit internally, and several vesicles on their surface.

A double hydrocele. In the right the fluid contained a number of small particles floating in it; and in both, at the bottom, was a yellow deposit attached to the membrane. In both, growing from the testicle, were two or three pedunculated vesicles such as are frequently attached to the ovaries.

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In this case there were sufficient indications of some embarrassment of the brain; but I had supposed this to depend chiefly on the difficult transmission of blood through the lungs, and anticipated nothing further than some serous effusion. A drowsy comatose state with general inability to exertion, but no absolute paralysis attended this disease, till the last day or two, when possibly the effusion of blood took place, and his speech



and the muscles of his face became affected. In the nightly accessions of restlessness and wandering we trace some analogy between this case and the last, though not sufficient to form a diagnostic character: indeed the nature of the disease was too complicated to allow us to draw any accurate conclusions as to the dependance of symptoms upon any particular portion of the organic lesion. The state of the kidneys as well as the condition of the vessels of the basis probably had an influence on the apoplectic effusion. I had no opportunity of examining the urine; for from the unwieldy form of the patient and his great inability to assist himself, it was always passed in bed.

Besides these two instances of superficial ulceration of the brain, another will be found in a subsequent part of this volume, in the case of a man named Holmes, who suffered hemiplegia from pressure of fluid in the ventricle; and on the surface of whose brain a small clean excavation was discovered.

### CASE LXXIII

*Encysted Abscess in the Middle Lobe of the Right Hemisphere of the Cerebrum, with Disease of the petrous portion of the Temporal Bone.*

THOMAS HANCOCK, aged 20, was admitted under my care into Guy's Hospital August 5th, 1829: he was a small well-proportioned man, not particularly emaciated, and able to walk without assistance; rather pallid in countenance, and complaining of almost constant pain in the head, which he referred to no particular part. He said this headache had been upon him with little intermission for the last three weeks, and that it frequently made him quite sick: he seemed to be perfectly collected, and denied having ever been delirious: pulse 84, thready: he frequently drew deep sighs, rolled about his head, and cast up his eyes: tongue moist but furred, particularly at the base: he was bled at the arm three days ago for the first time: there was no appearance whatever of paralysis.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥iv statim.

Embrocatio communis Capiti raso.

Habeat Hydrarg. cum Cret. gr. iij ter die.

7th. He was sitting up dressed, and said he always felt better when up: his manner was much the same as at the time of his admission, but he said the pain in his head was less: he still drew frequent sighs: pulse 78; tongue thickly furred towards the base.



Applicentur Cucurbitulæ cruentæ Nuchæ, et detrahatur sanguis ad 3x, et admoveatur postea Emplastrum Cantharidis.

Habeat Olei Ricini ʒvj statim;

Sumat Hydrarg. Submuriat. gr. j sexta quaque hora; et

Misturam Camphoræ cum Liquor. Ammon. Acetat. ter die.

8th. He is rolling his head on the pillow: he says that the pain comes on at intervals with severity, then nearly subsides; and that he is dizzy and nearly blind sometimes, and seems quite to lose himself;—at which times the nurses say he appears delirious: pulse 64: sighing frequent as before.

Admoveantur Hirudines xvj temporibus statim, et Repetantur medicamenta.  
Habeat Olei Ricini ʒls statim.

9th. I was unable to visit him myself; but his mouth had become sore, and he seemed much lower than before: so that it was judged right to desist from the mercury, and to give the mixture with the addition of a dram of the Tincture of Serpentaria every fourth hour.

10th. He remained in the same state: he seemed low, and the circulation languid, and required a good deal of rousing before he could answer questions.

11th. He was with difficulty roused, but when asked put out his tongue, which was moist and furred: skin rather cool; pulse very moderate: he lay with his head bent down and his knees drawn up. A mustard poultice was applied for a few minutes to his head, and this was followed by a large blister; but he never seemed to rally, and died that evening.

#### SECTIO CADAVERIS.

The body was by no means emaciated. A bloody discharge was observed from the right ear. On cutting through the scalp, blood immediately began to flow from the subcutaneous vessels. The dura mater was vascular, and a great many vessels bled when the cranium was removed, and large orifices were marked on the internal surface of the skull. When the dura mater was raised, the falciform process was nearly wanting, except in the posterior part; the arachnoid came into view not unusually vascular, but very decidedly dry and free from serous effusion, with a very slightly unctuous appearance. The arachnoid and pia mater came off together with tolerable ease; but not so readily as when effusion has taken place: the convolutions were slightly flattened, particularly about the centre of the right middle lobe. The two hemispheres, where the falciform process of the dura mater was deficient, were firmly attached. The

substance of the brain white, and very free from vascular points or mottling of any kind. The ventricles distended with several drams of a perfectly colourless fluid. The choroid plexus pale; the large vessels ramifying upon the walls of the ventricles, particularly in the posterior cornua, large and obvious; and the membrane on the outer side of the posterior cornu on the right side was of a yellowish colour, and slightly raised by a very thin layer of serous effusion beneath it. I now carefully raised the right hemisphere from its site over the petrous portion of the temporal bone, to see whether any mischief was communicated from the ear; when I found that a large portion of the middle lobe was completely diseased, discoloured, and disorganized, apparently in a state of suppuration; the cineritious portion so soft as scarcely to bear being removed without injury, and the substance beneath looking of a dark colour; and one small portion, not much larger than a pea, was red and vascular, corresponding to a similar portion in the dura mater. (Plate XI. Fig. 1.)

The dura mater, where it came in contact with this part of the brain, was slightly discoloured; particularly at the central part, of the size of a split-pea: it was but slightly held to the cranium over the whole extent of the diseased portion, and was completely detached at the discoloured part, where a thickening of the membrane had taken place, and a little bloody coagulum was effused, between it and the bone (Plate XI. Fig. 4.), corresponding with a diseased portion of the petrous part of the temporal bone (Plate XI. Fig. 5.).

Cutting into the diseased portion of the brain, it was obvious that the external portion was soft and discoloured, but separated easily from a cyst beneath it, which was of the size of a hen's egg, and contained a quantity of greenish yellow pus; some of the more fluid part escaping, but the greater part being of a thick and rather ropy consistence remained, when the cyst was fairly divided through the centre (Plate XI. Fig. 2.); and part of it was attached in flakes to the cyst, so as to require to be forcibly scraped by the handle of the scalpel, appearing to be the inner surface of the cyst itself in a state of softening. The cyst was as thick and nearly as tough as a piece of wash-leather; but owing to the time necessary to execute the drawings, it was nearly three days after the removal of the cyst before I could carefully examine its structure: at that time in many parts no vessels could be discovered, but towards its upper part many vessels of considerable size might be traced, the trunks of which seemed to

run along the internal surface, and their fine extreme division to float in the curdled pus with which the cyst was lined. (Plate XI. Fig. 3.)

In this case there was from the beginning no room to doubt that the head was the seat of formidable disease ; but in the absence of any local reference of pain, or the least hint at discharge from the ear,—which indeed I believe could not have existed long before death,—and in the absence of any partial or local paralysis, it was very difficult to determine what part of the membranes or of the medullary structure was chiefly suffering. I concluded that effusion was taking place from some inflammatory action in the brain ; and therefore, in addition to the different modes of depletion, I carried mercury to the extent of fairly affecting the mouth : but all was perfectly ineffectual ; and the result of the post mortem examination satisfactorily explains the inutility of all remedial means.

There is every reason to suppose that this disease commenced in the brain, and that the affection of the cavity of the ear, which had the patient lived must speedily have become more apparent, was a sequel of the primary disease ; for not only was no complaint made of deafness, or pain or discharge from the ear, but the mischief in the brain was found after death to be much more advanced than the disease in the ear ; and it is difficult to suppose that such an encysted abscess could have been formed in a very short period. It is even possible that an insidious disease had existed for a long time, and that some tumour had been gradually forming, and going through a process of softening from within, and that the symptoms became urgent only as the dura mater and the bone were implicated ; and to this followed serous effusion, and the consequent symptoms of pressure. I am, however, rather inclined to think that the cyst was of a character which, when illustrated by the case which follows, should lead us to consider it the result of an abscess gradually extending, and forming a fresh cyst as it advanced.

#### CASE LXXIV.

##### *Encysted Abscess in the Middle Lobe of the Left Hemisphere of the Cerebrum.*

WILLIAM PRITCHARD, aged 18, was admitted into the Clinical Ward under my care, December 16th, 1829. It appeared that about fourteen days before, being exposed at sea to wet and cold, he went to sleep without taking off his wet clothes ; next morning he was taken with acute pain of the head with shivering ; he did not however de-

sist from performing his duties as a sailor for three or four days. The pain of the head increasing, he was obliged to take to his bed; but received no medical advice until last Saturday, when he was able to walk ashore and get some medicine, which occasioned sickness: the next day he became drowsy and stupid, and has since remained in his present state. He lies on his back with the eyelids closed; but when spoken to loudly, opens them and appears to understand questions put to him. The pupils, on a strong light being applied to the eyes, contract feebly and irregularly: his pulse varies from 48 to 50, soft and lengthened; respiration 16: his bowels have not been opened since the 13th: he appears to suffer from pain of the head: his tongue is foul, brown and dry; face a little flushed.

Applicetur Cucurb. cruentæ pone aures, et detrahatur sanguis ad ʒviij,  
Admoveatur Empl. Lyttæ Nuchæ.

Radatur Capillitium, et Applicetur Embroc. communis postea.

Habeat Hydrarg. Submuriat. gr. j quaque hora ad sedes, et secunda quaque hora postea.

9 P. M. The full quantity of blood not having been obtained from behind the ear, the cupping-glasses were applied on the temples, and eight ounces of blood removed: the pulse rose to 56, but he did not appear more conscious: bowels freely relieved.

17th. Has been moaning all night; coma not decreased: pulse varies from 54 to 60, small; bowels open; tongue brown and dry in the centre, but moist at the edges; feet cold.

Applicetur Cataplasma Sinapis statim, et repetatur si opus fuerit vespere.  
Repetantur Medicamenta.

8 P. M. Is more easily roused: pulse 68, with more volume; feet still cold.

18th. More sensible: pulse 64; tongue moister and cleaner at the edges; bowels not open; head and face cool.

Habeat Olei Ricini ʒiſ statim.

Applicetur Cucurb. cruentæ pone aurem, et detrahatur sanguis ad ʒviij;  
Repetantur Medicamenta.—Arrow Root.

19th. Sensibility not increased: tongue brown but moist; pulse 72; bowels open; feet and hands still cold; head and face hot.

Empl. Lyttæ capiti.

Rep. Cal. cum Mist. Cret. comp. ʒiſ secunda quaque hora.

20th. From his restlessness it was found impossible to keep on the blister. He appears more sensible this morning: pulse 64; bowels not open; tongue brown but moist; considerable puffiness observable over both parietal bones; over the left distinct fluctuation, accompanied with great tenderness on pressure. On an incision being made behind the ear, a quantity of thin pus was discharged from between the pericranium and bone, occupying a considerable cavity.

8 P.M. Appears much relieved : pulse 76, fuller and softer.

21st. Says he has no pain in his head, but much soreness externally : tongue brown but moist ; bowels not open ; pulse 92, small ; discharge from wound in small quantity.

Habeat Hydrargyri Submuriatis gr. v hora somni, et Olei Ricini  $\frac{3}{4}$ s cras mane.

22nd. Bowels open ; the evacuation of a dark greenish colour ; pulse 84, and small ; tongue brown yet moist ; feet cold : but little discharge from the wound : face drawn a little to the left side.

Applicentur Cucurbit. cruentæ Nuchæ, et detrahatur sanguis ad  $\frac{3}{4}$ vij.

23rd. Is decidedly much more sensible ; answering questions readily, and showing some power of memory : pulse 88 ; bowels not open ; tongue cleaner and moist : the drawing of the face to the left side barely perceptible, except when speaking.

Habeat Hydrarg. Submur. gr. v statim, et Olei Ricini  $\frac{3}{4}$ s post horas quatuor.

24th. Face drawn more completely towards the left side : pulse 96 ; bowels not open, although the oil has been repeated this morning ; tongue foul but moist.

25th. Appears much improved : tongue considerably cleaner ; pulse 100 ; bowels not relieved.

Haust. Sennæ statim.

26th. Is more comatose, being with great difficulty roused : pulse has sunk to 56, small and labouring ; bowels have been freely acted on ; pupils act but feebly.

Applicentur Cucurb. cruentæ Nuchæ, et detrahatur sanguis ad  $\frac{3}{4}$ x ;

Empl. Lyttæ Nuchæ postea.

Habeat Hydrarg. Submuriat. gr. j sexta quaque hora.

27th. Pulse 68 ; sensibility not increased ; bowels not acted on.

9 P.M. Pulse 108 : breathing easier ; bowels not yet relieved.

Enema Catharticum statim.

28th. He died at 11 o'clock this morning.

It appeared from strict inquiry, which Mr. Dashwood (to whose diligence I am indebted for the notes of this case) had afterwards an opportunity of making from the friends, that this lad received a severe blow upon the head about thirteen months ago ; and that he has since been always very stupid and heavy, generally shunning conversation.

#### SECTIO CADAVERIS.

The pericranium had been completely removed from a considerable space directly above the left ear, where a part of the bone was rough, and

on applying the saw proved to be thin and almost corroded through from the inside, where it had a worm-eaten appearance; the dura mater to the extent of a sixpenny piece was separated from the skull, a small quantity of thick pus lying at that part, just sufficient to fill up the corroded cavities. The dura mater adhered to the brain at the same place. The part of the brain which corresponded to this disease was about the middle of the middle lobe: on raising the dura mater the hemispheres of the cerebrum were observed to be of a peculiar pink fawn colour, and not showing many large vessels, but the convolutions remarkably flat and smooth: the surface of the arachnoid quite free from moisture, and no fluid between the convolutions.

The brain in general was of a natural consistence, but decidedly variegated with a purple mottling. The right ventricle distended, with about two ounces of serum; the foramen of Monro large. The left ventricle had been as much distended as the right.

The middle lobe of the left hemisphere felt full of fluid, and this proved to be an abscess, in the contents of which there was a kind of separation into a more fluid and a more solid part, both of a yellowish green colour: this abscess was contained in a distinct cyst, as thick and nearly as firm as a piece of wash-leather. This appeared to be composed of three separate layers;—the internal layer was a deposit of puriform lymph, and was not quite equally spread on the whole internal surface, but on the contrary in some parts was almost wanting: external to this was a very vascular membrane, which on being divided looked quite red; and externally to this was a layer, likewise very vascular, which from its colour and appearance seemed to be composed of cerebral substance. The whole of the cyst separated easily from the surrounding brain, which was softened in its immediate neighbourhood. The cyst approached very nearly to the surface of the brain on the outside, where by its pressure it had occasioned inflammation and ulceration of the dura mater and bone. On the inside it encroached upon the posterior cornu, and was separated from the cavity of the ventricle at that part by little more than the membrane which lines the ventricle. (Plate X. Fig. 2.)

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When this case first came under my care, I was induced to consider it probable that effusion of serum had taken place into the ventricles, in consequence of inflammatory action excited in the progress of fever. The history was, however, in some degree anomalous; and in the progress of



the case, when the puffy state of the scalp displayed itself, I suspected suppuration had taken place between the dura mater and the skull. This led to a very deliberate consultation with some of the surgeons of the hospital, as to the propriety of removing a portion of bone by the trephine:—on the whole, however, this was judged inexpedient, and it does not appear likely that it would have been productive of ultimate benefit; at the same time it is a question well worthy of consideration, whether in such cases, where, together with unequivocal symptoms of internal mischief, we have disease and suppuration taking place under the pericranium, we should not be justified in having recourse to the removal of a portion of the bone, under the impression that this state of the scalp is an index of the situation of the disease. In the present case had the attempt been made, the diseased condition of the bone would probably have been productive of much embarrassment to the operator, and had he proceeded no further than to lay bare the dura mater, scarcely half a teaspoonful of pus would have been evacuated, and no one would have had the boldness to recommend a puncture to be made into the substance of the brain, in the hope of discharging pus which was not visible.

Had we however, by the removal of a portion of bone, afforded an opportunity for the abscess to discharge itself gradually by an external opening, there is no doubt a possibility that life might have been prolonged; though but very little probability that an abscess thus formed, with a secreting cyst, would have been gradually reduced and closed: nor can we well anticipate what would have been the progress of the case under such circumstances. There are abundant cases on record, to show that considerable loss of the substance of the brain, both by accident and by suppuration, can be borne without destruction to life: and these facts it is, which, when the chance of life is exceedingly small without an operation, seem to authorize us in making the experiment of removing a portion of the bone.

The great resemblance between this case and the last increases the interest of both.

#### CASE LXXV.

##### *Encysted Abscess of the Anterior Lobe of the Left Hemisphere of the Cerebrum.*

Miss W—, aged 17, was first taken ill in July 1829, and her complaints were supposed to arise from irritation consequent on the drawing of a tooth. She then went through



an attack of continued fever, without any marked local affection; and while slowly recovering from this, she had a discharge of blood and pus from the nostril: subsequently to which, symptoms of cerebral disturbance came on, and she died in October, with all the symptoms of pressure on the brain.

#### SECTIO CADAVERIS.

On raising the calvaria, about a table-spoonful of thickened pus was discovered between the dura mater and the inner table of the skull, opposite to the left tuberosity of the os frontis. The lining membrane of both frontal sinuses was extensively diseased and ulcerated; and there was an opening from the left sinus into the cavity of the cranium, sufficient to admit a crow-quill to pass easily. There was no adhesion of the dura mater to the arachnoid; and the former being raised, the left hemisphere of the brain appeared flattened, so that the convolutions were nearly lost, and of a dusky hue. On slicing away the superior part of the right hemisphere, it was seen that the left covered the greater part of the corpus callosum; and on dissecting the left hemisphere, a firm cyst containing mucus and pus to the extent of three ounces was found imbedded in the anterior lobe of the brain, having no connection with the dura mater, excepting at one small point near the orbital plate of the frontal bone.

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For this case, (to which I have already alluded in page 106,) I am indebted to Mr. Francis Toulmin, who informs me that the father of the young lady had, about thirty years ago, a discharge of blood and pus from his nose, for which he consulted Mr. Cline and Mr. Toulmin, sen., when he was recommended to use fumigations of cinnabar, with good effect. From the course observed in the two cases I have just related, I am led to suppose that this encysted abscess was probably formed subsequently to the disease in the membranes of the nose and frontal sinuses.

#### CASE LXXVI.

*Hernia Cerebri, with extensive Destruction of the Brain, and Formation of Pus between the Dura Mater and the Arachnoid, in consequence of Fracture.*

MICHAEL MONYHAN, aged 8 years, a native of Ireland, was admitted into Luke's ward on the 30th July, with fracture of the cranium, humerus and ribs of the right

side. His mother stated that about four o'clock that afternoon he fell from a window two stories high, his head striking against the edge of an iron boiler. He breathed with great pain and difficulty, the wound of the scalp, three inches in length, extended from a small distance beyond the coronal suture near the superior edge of the parietal bone of the right side, to the prominence indicating the situation of the frontal sinus.

Mr. Cooper, having examined the wound, detected a fracture with depression; he therefore enlarged the wound, elevated the bone, and removed several detached portions: the dura mater was observed to be wounded, and a small portion of the brain with its coverings protruded through the opening. There was very little change in the child after the operation, except that he had become quiet and fell asleep; he had not had at any time since the accident symptoms of compression; the pupils were dilated and nearly insensible to light; the pulse was frequent.

R Hydrarg. Subm. gr. v statim. Magnesiae Sulphatis ʒj, Liquor Ammoniae Acet. ʒij, Aquæ com. ʒss, tertiis horis.

31st. Morning. He had not been at all insensible, and was yet free from symptoms of compression: if he were asked a question, he replied quickly and properly: respiration hurried and painful; pulse very frequent; the bowels had not been opened; there was unnatural heat about the forehead.

Hirudines xij temporibus. Calomel. gr. j sexta quaque hora. Enema Colocynth. statim injiciend.

Evening. The respiration had become very difficult, quick and painful; and mucus was heard in the bronchial tubes: pulse 140, and hard: he continued quite sensible, complaining of pain in the head. This disturbance was attributed to the tension of the contused scalp and the confinement of blood and pus below it. The adhesive straps were in part removed, and cold lotion was applied to the forehead and temples. He was bled to four ounces, which caused syncope and afterwards vomiting, which very greatly relieved him, and the pulse immediately lost its hardness.

Habeat Pulv. Jalap. cum Hydrarg. Submur. gr. vj.

August 1st. He did not sleep during the night, and at intervals was delirious: respiration not so quick nor so painful; skin hot and dry, and intense thirst; pulse 140, full but soft; bowels had been freely evacuated; tongue dry and furred: the head continued to be very hot.

Hirudines vj temporibus.

2nd. The appearance of the child was much altered for the better; he was at this time quite cheerful and entirely free from pain; had much less heat of skin, which was likewise moist with a gentle perspiration: pulse not so quick, 100 and soft; tongue moist and covered with a dirty fur; respiration perfectly free and equal; thirst not so urgent; bowels open. Poultice applied to the head.

Evening. Complained of great pain in the side ; respiration quicker ; pulse frequent, full and soft ; the temperature of the skin below the natural standard ; thirst very troublesome, and the patient in a very irritable condition, tossing himself to and fro in the bed almost continually. The heat of the forehead was so intense that it was necessary to remove the poultice and to apply evaporating lotion.

3rd. A.M. Passed an exceedingly restless night, and this morning was very ill, constantly moaning ; respiration very quick, accompanied with loud mucous rattle ; tongue dry and of a dark brown colour ; the teeth and lips covered with a fur of the same appearance : pulse very quick and small : bowels open.

Evening. Not at all improved ; he appeared much more debilitated, and was not willing to reply to questions when asked him : bowels very open, fæces and urine passed from him without his knowledge.

4th. Somewhat better. Respiration neither so loud nor so quick, yet he complained of pain in his side accompanied with cough. On examining the side, a sensation resembling a combination of emphysema and crepitus from fracture was felt over the ribs and sternum : a bandage was applied round the chest : pulse not so frequent, he did not moan so frequently, and continued to be sensible.

5th. Greatly improved ; he was quite cheerful and merry, and replied to questions without inconvenience : respiration had become calm and almost natural ; cough not so frequent : skin warm and moist : pulse 96, soft and regular : tongue moist and clean at the edges : the sphincters had regained their power : the bowels moderately relaxed. The wound discharged a large quantity of healthy pus, and its edges were widely separated from each other, but had a very healthy appearance. Bread and water poultice continually applied.

8th. Was asleep when visited ; pulse quick, and rather hard ; breathing regular ; had slept well during the night ; bowels confined.

Pulv. Jalap. cum Hydrarg. Submuriat. gr. vj.

9th. Was again asleep when visited, and had been in that state nearly the whole of yesterday, never asking for any thing ; pulse full and quick : skin intensely hot and very dry : he passed an exceedingly restless night, frequently moaning as if in pain. The purgative powder was repeated, which procured an evacuation from the bowels.

11th During the whole of yesterday and this morning was in a state of coma, sleeping continually, and was with difficulty roused ; and when sufficiently disturbed to be made sensible, he complained of pain in the head and side : bowels were not open.

Sumat statim Hydrarg. Submuriat. gr. ij et Pulv. Antimon. gr. iij.

13th. Much better ; he did not complain of pain of the head or chest as formerly ; respiration natural ; cough now and then troublesome : he had been in this improved condition since yesterday. As soon as the purgatives acted he began to lose the unpleasant symptoms ; a large quantity of medicine was administered before that effect

could be obtained; calomel and jalap having been repeated twice with saline medicine, and lastly a colocynth enema. Pulse continued quick; tongue covered with a dirty fur; thirst very urgent. He had not taken solid food until to-day, when a small quantity of potatoe was allowed him. A very large portion of brain protruded through the wound; it had been gradually rising above the level of the bones during the last few days: pus was discharged in great abundance, and of a healthy character.

17th. The general symptoms had improved; the skin was cooler although dry; breathing quite easy and regular: he did not speak of pain in any other part of the body except the head, near the wound. The protruded portion of brain had the appearance of being covered with slough, a small part of it was removed by the sponge.

21st. Very unfavourable symptoms were again present; great heat of skin; oppressive and constant thirst: pulse quick; tongue dry and furred: respiration hurried. He frequently exclaimed, "Oh my head!" the pain recurring at short intervals with great severity: when asked how he felt, he invariably replied that he was very well, except that his head was now and then very painful.

Calomel gr. ij Pulv. Antim. gr. iij, hora somni, cum Haust. Sennæ mane.

24th. Symptoms greatly aggravated; countenance flushed and anxious: he was extremely irritable, complaining of pain in every part of his body, referring it from one part to another without intermission: had been very restless during the night, and at intervals was delirious. The excrescence of the brain had greatly increased in size, its surface being covered with a dark ragged slough, part of which was removed without exciting pain. Pulse at the wrist not so quick, but the carotid arteries beat very strongly and frequently; he was almost incessantly crying out for drink: bowels open: tongue furred, and dry.

25th. He had been delirious nearly all the night; he was this morning quiet, breathing very sonorously, was with difficulty roused, and when he had answered a question he instantly relapsed into his former state of coma. The pupils were dilated and insensible to light, and the corneæ seemed to be covered with an opaque film: pulse very quick, and irregular.

26th. He continued in this condition all the day and night, and at 11 o'clock this morning he died.

For the particulars of this case, which I frequently saw during its progress, I am indebted to Mr. Todd, who furnished me with his notes at the request of Mr. Cooper.

#### SECTIO CADAVERIS.

The body much emaciated. We were not permitted to examine any part but the head.

The tumour which was formed on the right side of the forehead was in a state of sloughing, and the bone through which it protruded was to some extent denuded of periosteum, discoloured, and separated by a distinct groove of demarcation from the healthy bone. The structure of the tumour was scarcely to be discovered, on account of its sloughy condition, but it seemed to have a membrane covering it.

The dura mater around the opening from which the fungus protruded, was covered on its outer surface, where in contact with the bone, with a film of coagulable lymph for a small space, and to a rather larger extent, corresponding with the dead portion of the skull, the dura mater had lost its glossy surface, and was of a blackish gray colour; a small splinter of bone protruded, and the membrane to a still greater extent had a white opaque appearance, looking tense, with no marks of convolutions beneath, and around the opaque part was traced a vascular zone. (Plate XII. Fig. 1.)

The brain was carefully removed with the upper part of the dura mater still attached, and a drawing made. (Plate XII. Fig. 1.) The dura mater was then raised: it adhered in some degree to the arachnoid, around the diseased part; and more particularly around the edges of what appeared to be an abscess, where the adhesion was so firm as scarcely to admit of its being raised without tearing the brain; when, however, it was removed, a deposit of well formed pus was completely exposed running backwards from the fungus; and along the edges of this pus an attempt had been made to form a false membrane. At first this gave the idea of being a deep abscess in the substance of the brain, but on further examination the vessels of the arachnoid were seen dipping down under the pus; and when the pus was removed with the handle of the scalpel, a depression of nearly a quarter of an inch in some parts was found, in which the pus was lodged external to the arachnoid, which was quite perfect, till it was destroyed and lost in the sloughy fungus: in one small spot of the size of a pea it was doubtful whether the arachnoid was not ulcerated through; and here the pus was found to form a deposit in the substance of the brain, not larger than a French bean; this seemed to communicate, though imperfectly, with the external deposit of pus. A small collection of pus was likewise situated externally to the arachnoid, on the left anterior lobe. A drawing was made of the appearance of the pus on the surface of the arachnoid. (Plate XII. Fig. 2.) A section was made perpendicularly through the fungus into the ventricle, and through the corpus striatum of the right side, and a

drawing made. (Plate XII. Fig. 3.) The broken mass of red, brown, and curd colour, with which the fungus was connected, extended to the surface of the ventricle, but had not opened into it. Round the broken mass several red points were visible in the substance of the brain, like small ecchymoses, such as are usually seen around a portion of brain broken by an apoplectic clot. In the posterior cornu of the right ventricle pus was deposited, and the surface appeared rough and softened; but as this was not examined till two days after the removal of the brain, the appearances were not very satisfactorily made out: a considerable quantity of pus lay between the arachnoid and the brain at the base; over the upper surface of the cerebellum; and at the under surface of the middle lobe of the cerebrum.

### CASE LXXVII.

*Hernia Cerebri, with extensive Destruction of the Substance of the Brain, from an Accident.*

MR. C. GRIFFITH was requested on May 25, 1829, to see a child, aged 20 months, who in passing from the room to the passage with a cup in its hand, had fallen and wounded its head with the cup, which was broken in the fall. On examining the head, there appeared an incised wound: a small rough point was felt at the bottom; and with a pair of dressing forceps, after using considerable force, a portion of the cup was drawn out: this was of a triangular form, having the base an inch in length, and the two sides rather more: it had penetrated the posterior and lateral part of the frontal bone on the right side, just anterior to the coronal suture. Considerable hæmorrhage had occurred; and as this continued, lint was applied to stop it: the broken cup being put together was found perfect, except the corner of the piece which had been extracted. A poultice was applied; and minute fragments of the cup came away in the discharge till the 3rd of June, when the brain had risen to the height of the edges of the external wound. Pressure was now used with adhesive plaster, defending the edges, which were inflamed, with simple dressing. On June the 6th, the Liquor Calcis was used in addition; and under this treatment, with slight variations, the wound continued to improve in appearance and to diminish, till about the 6th of July, at which time a pulsation had been visible for a week: it was now dressed with very small pieces of lint and strapping: a slight degree of fever came on; the child began to fall away; the edges of the wound looked pale; the granulations became glassy; the pulsation returned, and the fungous brain projected: the discharge was very thin; and the wound, instead of diminishing, increased till its death.

With regard to the constitutional symptoms and treatment, there was at first slight



fever and constipation, which were relieved by occasional small doses of calomel and salines. At the time of the accident, the child was recovering from the whooping-cough, the fits of which increased the flow of blood to the head, and enlarged the size of the projecting portion of the fungous brain. About the beginning of July the health began to fail very much: the child became restless, emaciated, and had two slight convulsive attacks, which were relieved by acting on the bowels and removing the dressing. On the 16th the fever increased, with indisposition to notice any one or to take food, till the evening of the 23rd, when convulsions came on; and at 2 o'clock, under a second fit, he expired.

#### SECTIO CADAVERIS.

On dissecting back the scalp, the edges of the external wound were slightly adhering to the pericranium, which was detached for about a quarter of an inch from the opening in the bone. The projecting portion of brain had entirely receded. On elevating the cranium, the edges of the opening in the dura mater adhered to the bone, and the pressure exerted in elevating the bone pressed out a portion of the brain, from which a small quantity of purulent matter exuded, which was contained in a cyst and did not communicate with the right lateral ventricle or the abscess opening into it. The convolutions of the right hemisphere were very much unfolded, as is seen in *Hydrocephalus internus*. On cutting into the right part of the centrum ovale, an abscess was discovered occupying a large space of the anterior and middle portions of the cerebrum, and communicating freely with the right lateral ventricle, a small portion of bone was found deeply imbedded in the anterior lobe, which appeared to have been driven in before the cup: and sero-purulent fluid was found with flakes in the lateral ventricles. The plexus choroides was not more vascular than usual. The quantity of fluid was from ten to twelve ounces: the piece of bone was connected with the larger abscess. The opening was in the frontal bone, just anterior to its junction with the parietal. The right thalamus was rather diminished in size.

For the particulars of this case I am indebted to Mr. Clewin Griffith of Connaught Terrace, a gentleman very active in the pursuit of pathological knowledge. It is interesting as bearing evidence to the extent of cerebral mischief which can be sustained without immediately destroying life, or indeed producing any very urgent symptoms. From the nature and extent of the injury, and the free communication with the ventricles, there is some



reason to doubt whether the puriform fluid was derived from the substance of the brain or from the membranes : and it is certainly a much more rare occurrence to find true pus in the substance of the brain, and derived from the cerebral substance, than in the ventricles, or on the surface of the arachnoid or dura mater. I cannot indeed with confidence assert that I have ever met with it, unless an adventitious membranous cyst surrounded the cavity, or the natural membranes were extensively implicated.

For the following very interesting case I am indebted to my friend Mr. Ashwell, in whose words I shall give it : and it affords another example of the obscure character of those symptoms by which extensive disorganization of the brain is frequently accompanied.

### CASE LXXVIII.

#### *Extensive Suppuration in the Substance of the Brain.*

"Mrs. R—, aged 32, a large woman and of full habit without being robust, was safely confined on the 27th of January, 1824, of her second child. She went on well till the 4th of February, when she had a regular intermittent, which returned every third day. This was not considered very remarkable, as late in the previous autumn she had spent some weeks in a marshy village, where ague was very prevalent.

"Feb. 11th. After having had her bowels open three times during the night, Mrs. R. was seized this morning with an epileptic paroxysm ; during its continuance she was unable to articulate, but never seemed entirely to have lost her consciousness : she frothed at the mouth, bit her tongue, and the whole face was livid. Previously to this attack she had frequently started in her sleep, but there had not been the slightest approach to subsultus tendinum. A neighbouring surgeon was called during the hurry of the moment, and took about twelve ounces of blood from the arm, which had a very buffed appearance, and the crassamentum was remarkably firm. During the interval she was collected ; the pulse firm and 120. A few drops of volatile alkali in water were also administered. Another paroxysm soon occurred, much less violent and of much shorter duration, after which she was quite collected and recovered the perfect command of her articulation : the pulse now remained 120, full and strong. At this period there appeared some very slight affection of the muscles of the left side of the face ; there was a good deal of hurry in her manner, but she was quite sensible. Rest was strictly enjoined ; her head was shaved, and a cold lotion with ether and rose-water was applied.

Habeat Pil. Hydrarg. gr. iv.

R Liquoris Antim. Tartar. ꝥ xx.

Mucil. Acaciæ et Syr. simpl. āā ʒss.

Aquæ puræ ʒij. M. fiat Haust. quarta quaque hora sumendus.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒxij.

9 P. M. Finding her relieved during the time the cupping-glasses were applied, eighteen ounces instead of twelve were taken. Pulse 95, soft, and much less full and hard than in the morning; bowels have been once relieved; skin moist and cool, and head less hot; does not now complain of any heaviness or oppression. The muscles on the right side of the head are painful, and she keeps her hand pretty constantly applied to the right ear: mind more tranquil, and much less hurry. We wished much to procure sleep, that the brain might experience as little undue excitement as possible.

R Extr. Hyoscyami et Extr. Aloës āā gr. iv.

Syr. q. s. fiant Pilulæ ij hora somni sumendæ.

R Magnes. Sulphat. ʒj, Succ. Limonis ʒj,

Syr. aurant. ʒij; Aq. puræ ʒvi. M. fiat Haust. quartis horis sumend.

" 12th. 1 P. M. Although in some respects she was better at 8 this morning, there seems now some return of pressure; there is a little drawing up of the left angle of the mouth, more vacancy about the eyes, and a general expression of listlessness and lethargy. Motions three in number, containing less feculent matter but more bile: urine natural in quantity and colour: pulse 95, rather fuller: heat increased slightly about the right side of the head.

Applicentur Hirudines ix vel x temporibus.

Contin. Lotio et Haust.

9 P. M. Improved by the depletion: bowels relieved once since the morning: pulse better in character; fully sensible, and capable of making nice distinctions in ideas and expression. She is able to grasp equally well with both hands, and the pupils are and have been very sensible to light.

Capiat Extr. Hyoscyami gr. iv.

Hydrarg. Submuriat. gr. ij. Repetantur alia remedia.

" 13th. 1½ P. M. A little more cerebral disturbance; mouth slightly drawn, and she seems to possess rather less power with the left than the right arm. Pulse 95, equable and soft, not intermitting: bowels open twice since last night; skin cool, left arm slightly colder than the right.

Applicentur Hirudines x et Cataplasmata.

8 P. M. Fifteen leeches were applied and the bleeding encouraged: two motions have been procured, dark-coloured and bilious. The urine has been freely passed, and deposits rather a red sediment. Pulse 95, more free and soft; skin moist. The mustard poultices have acted very beneficially, and the whole expression of the face and eyes is improved. There is much less difference of temperature between the upper extremities than in the morning, the left being nearly as warm as the right. Mind quite perfect; wished much for porter, but was easily convinced of its impropriety.

Appl. Empl. Lyttæ ampl. nuchæ. Cont. Cataplasmata. Repetantur Pil. ij hora somni, et Haust. quarta quaque hora. Applicetur assidue Lotio Capiti.

"14th. 1 P. M. In all respects improved, speaks more naturally: bowels freely open: pulse 95, and soft; wishes much for some porter and toast. Head cool, and has passed a tranquil night, with some sleep.—9 P. M. There is some slight alteration in the character of the disease, no appearance of lethargy or coma, and scarcely any of the symptoms of pressure which have caused so much anxiety, but there is more heat of surface, a little increase of quickness in her perception and rapidity in her answers. The pulse too is accelerated, 120, and rather strong in its beat: tongue remains white, and furred, it is however moist: does not complain much of thirst, has had two hours of rather sound sleep during the afternoon.

Applicetur Hirudines xvij temporibus. Contin. Cataplasma. Sinapis si opus fuerit. Pil. Hyoscyami cum Calomelane, et Haust. et Lotio.

There is an equalization of temperature in both arms, and she can grasp as well with one as with the other. It is evident there is still some cause giving rise to increased action about the brain, although it is more subdued.

"15th. Altogether improved: pulse 95, and soft: answers rationally every question, and has a strong desire for porter, which she has frequently expressed during the last few days. Bowels have been relieved during the day three or four times.

Repetantur remedia.

"16th. 2 P. M. Pulse 98, much less strong than I have ever yet felt it, appears more debilitated and less capable of exertion than yesterday. Perfectly sensible, and speaks more naturally than at any time since the attack. It is very evident that the symptoms of head affection are much diminished, but still she is not free from slight returns, and a small degree of excitement would probably bring them back.

*Evening.* The beer has done her no harm; has had some natural sleep, and breathes very comfortably. Bowels relieved twice during the day: pulse 98, and rather fuller.

Repetantur Cataplasmata Sinapis et alia remedia.

"17th. *Noon.* Bowels have been relieved three times: pulse 94, soft and free: mind quite tranquil, and in countenance and in manner she is more natural.—To have half a pint of beer.

Repetantur Medicamenta.

"18th. Passed a restless night, and more excitement than yesterday: pulse 100, and rather fuller: bowels open but twice: rather more fullness about the eyes; and refers the sense of distention and uneasiness distinctly to the right side of the head, more especially to the meatus auditorius deep down, seems rather more lethargic.

Appl. Cataplasma. et alia remedia.

Gutt. Nigræ m̄ vij, Mucil. Acaciæ,

Syr. simpl. āā gijj, Pil. hydrarg. gr. x,

Aq. Cinnam. ʒvj; M. fiat Haust. hora somni sumendus.

9 P. M. Much improved since the morning; knew the precise time of evening by the watch; considers herself better, though, to use her own expression, she is very far from being well.

"19th. 1½ A. M. Is now violently convulsed: pulse not to be counted: perfectly unconscious, and pupils absolutely insensible to light even if the candle be closely applied to them. Twelve ounces of blood were taken from the arm, mustard poultices were placed on the feet, and a common glyster was thrown up. These measures however proved ineffectual, and our patient very quickly expired; having remained seven days entirely free from puerperal convulsions, after their first appearance."

#### SECTIO CADAVERIS.

"On the evening of the 21st the head was examined. The dura mater was thickened and highly injected; the surfaces of both hemispheres vascular, the left rather less so than the right; and its substance was healthy, at least free from any process of disorganization. Just above that part of the brain opposite the meatus auditorius externus there was a complete hole, surrounded by coagulable lymph, leading to an abscess occupying very nearly the whole of the right hemisphere. The cerebrum was here, as may be supposed, quite 'broken down,' and looked like a mass of triturated putrid brains, melting between the fingers. No distinction of cortical or medullary substance was apparent. Cerebellum quite healthy. We were not allowed to examine any other part of the body.

"As to the origin of this extensive mischief in the cerebrum, Mrs. R. could recall no occurrence at all bearing upon it, excepting a slight blow on the head during the previous autumn, received in getting out of a warm bath, which was succeeded by some slight pain, but not sufficient to attract much attention, either at the time or afterwards, until her confinement.

"The most remarkable feature of the case is the very slight constitutional and local derangement produced during the progress of such extensive disorganization of a most important organ. It was not till the 'shock of parturition' had produced its effects on the system, that any symptoms, at all indicative of the disease manifested themselves. And there is some reason to believe, that if labour had not supervened, the first manifestation of the existence of such formidable mischief would have been associated with an immediately fatal result."

## CASE LXXIX.

*Suppuration in the Posterior Lobe of the Cerebrum, connected with Abscesses in other organs of the Body.*

MARIA LOWTHER, a maid-servant aged 17, was brought to the Hospital, October 22nd 1829. She had enjoyed but indifferent health for some time, and had experienced great mental disturbance by the sudden death of her brother. Five weeks before her admission she had suffered much from a whitloe on the fore-finger, caused by the prick of a needle. This, however, got quite well; but about a week after she appeared to have a cold; she had cough, painful respiration, frequent rigors, great pain in the bowels and head, particularly in the latter. An abscess now appeared in the axilla, accompanied with much general irritability. This abscess dispersed, but was immediately succeeded by another on the fore-arm, together with one in the axilla. She applied to a dispensary, and was considered to be labouring under irritative fever: her head became more confused, she daily grew worse, and became delirious, with frequent low moaning. Two days before her admission into the hospital her legs were observed to be œdematous, and she complained of general tenderness. During the last week her motions had sometimes been bloody, and epistaxis had taken place on two occasions.

At the period of her admission, on the 22nd, she was in an exhausted state, having been brought two or three miles: her countenance pale and anxious; her eyes sunk; exquisite tenderness to the touch generally; feet and legs slightly œdematous; ecchymosed spots upon the hands and feet; a large abscess in the axilla, and another on the fore-arm; abdomen tumid as well as tender: pulse rapid, 152; respiration 44, short, difficult, and painful: tongue dry, with a broken fur, much sordes about the mouth and teeth. The abscesses were opened, and from that in the axilla sloughy portions of cellular membrane were discharged. She was ordered to take a grain of opium, a quarter of a grain of tartarized antimony and two grains of calomel, every four hours, and a large blister was applied to the lower part of the chest and the scrobiculus cordis. After being in bed for some time she seemed to rally, and the report in the evening was, that her bowels had been freely opened: her pulse was 160, with considerable force; respiration nearly 50, greater difficulty of breathing; skin hot, tongue dry and red at the sides: general tenderness undiminished. Her bowels had been freely acted upon; her mind wandered, and her conversation was incoherent: she was restless, and continually catching at the bed-clothes.

In the following morning at 10 o'clock she died.

## SECTIO CADAVERIS.

Examining the body externally, one or two small blisters filled with bloody serum were seen upon the toes; and on the fore and middle finger of the right hand were larger vesicles, filled with pus mixed with blood: on the back of the right fore-arm near the wrist was the opening made by the lancet into an abscess of the cellular membrane: under the axilla of the same side was another opening communicating with a larger abscess, which still contained some cellular sloughs and clots of blood: at the inside of the upper part of the right thigh a similar abscess had also opened itself: there was slight excoriation on the nates.

The lungs were free from all chronic disease; but the pleura of the left lung was inflamed, and the lower lobe covered with a thin recent pellicle of coagulable matter hanging in fringes from the lower margin, and slightly gluing it to the diaphragm, which was also covered with a thin recent membrane. The lung itself was tolerably healthy, but red and less pervious to air than natural, having evidently partaken, at the lower part, of the inflammatory action of the pleura: a small quantity of serum mixed with shreds of lymph occupied this cavity of the chest. The right lung was more inflamed in its substance, but less in its pleura than the left; some considerable portions in the lower lobe being quite hardened, more friable than natural, and going into a state of hepatization. In the pericardium were two or three ounces of clear serum. The intestines were distended with air, but not vascular to appearance.

The whole surface of the peritoneum passing over both stomach and intestines was covered with thin shreds and pellicles of lymph, slightly gluing together several of the convolutions; and when these were drawn asunder, puriform serum was found in the cavities between the folds of the mesentery, and filling the hollow of the pelvis.

The liver was healthy, but extended an unusual way into the left side, where it quite surrounded the upper part of the spleen, and seemed irritated by its contiguity to that organ. The spleen was the seat of extensive disease, appearing to have suffered first by some chronic deposit of white matter (as described in Cases IV. & XXXVIII. of the former volume of these Reports,) which was so extensive as to occupy nearly one-third of the whole spleen, the greater part deposited about the centre of the organ, nearly bisecting it in its short diameter; and this deposit had lately run



into a state of unhealthy suppuration, so that it formed an imperfect abscess; and another smaller deposit of the same kind had undergone a similar change. The small intestines, though distended with flatus, were not unhealthy in appearance, but the peritoneal coat tore off very easily. The masses of mucous follicles were of a deep-gray spotted appearance, not elevated. The colon was greatly diseased in its mucous coat, which, throughout its whole extent, was scabrous, thickened, of a dark-gray colour, and suffering the feculent matter to adhere to the membrane.

The kidneys pallid: the ovaries large, red externally, and apparently in a morbid state of irritation: the vesicles of De Graaf large and thickened. The arteries examined in various parts of the body yielded no appearance of disease, and the veins were perfectly healthy, but the coagula in them rather strong. This investigation was not confined to the cava and the portal vessels, but was extended to the most minute examination of all the deep-seated and superficial veins, from the extremities of the fingers on both sides to the axilla, and from the groin upwards towards the cava.

The external appearance of the brain bespoke no disease:—no unusual injection of the vessels upon the membranes; no effusion of serum beneath them; nor was any particularly flattened portion traced in the convolutions. The general substance of the brain was likewise healthy, and it presented no morbid appearance nor irregular vascularity in the layers of the cortical substance: but on slicing off the left hemisphere of the cerebrum to a level with the top of the ventricle, a portion of brain came into view, about the size of a small walnut, situated quite at the posterior angle of the hinder lobe, so completely softened as in part to run out when it was raised. Though close upon the cortical substance, which had evidently partaken of the morbid action, the softening had principally taken place in the medullary substance, which looked like disorganized brain mixed with a little blood, so as to produce a brownish semifluid mass; it was surrounded by no cyst, nor was it separated by any defined line from the healthy brain. (Plate XIV. Fig. 2.)

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This case presents some points of interest. It is a very striking example of that general tendency to inflammatory action which not unfrequently occurs, and which has in several cases been traced by Mr. Arnott to be connected with inflammation of the venous system. I certainly thought that such a combination might have occurred in this case; but the most



careful investigation proved that both the veins and the arteries were free from disease.—This case may likewise throw light upon some instances of softening of the brain. It is true that nothing resembling pus could be discovered in the diseased portion of brain ; but, connected as it was with a tendency to form abscess as seen in the cellular membrane and in the diseased portion of the spleen, and with a general inflammatory condition as witnessed in the serous membranes both of the abdomen and the chest, I can scarcely consider this in any other light than as an unhealthy abscess, corresponding in that respect with the sloughing carbunculous abscess in the axilla, and that of the spleen filled with shreds and grumous matter derived from the nature of the substance in which it was formed :—we can hardly restrict the term abscess of the brain to those very rare cases in which well-formed pus is found in the substance of the cerebral mass.

### CASE LXXX.

#### *Suppuration of the Brain with Hemiplegia.*

WILLIAM PENDERSON, a negro from Jamaica, aged about 40, was admitted into Guy's Hospital under my care, September 23rd, 1826. Two days before his admission he had been seized suddenly while at work with paralysis of the right side. The hemiplegia was still complete ; he was unable to make the slightest motion with his right hand, or arm, or leg : his face was drawn forcibly to the left side on every attempt to speak ; and when he put out his tongue it was turned to the right side. He appeared perfectly sensible ; his pupils were natural, and his eye sufficiently bright ; but he was unable to make any intelligible sound with his voice : he seemed to attempt to answer questions, but only uttered some indistinct monosyllabic sounds : pulse 52, oppressed : bowels confined.

Applicentur Cucurb. cruent. Nuchæ, et detrahatur sanguis ad uncias quatuor.

Radatur Caput, et admoveatur Embrocatio communis.

Habeat Pilul. Colocynth. cum Hydrarg. Submur. gr. xv statim, et

Capiat Infus. Rosæ cum Magnes. Sulphat. ter die.

Sept. 24th. Pulse weak, about 54 : pupil natural : he is unable to speak.

Applicetur Emplastrum Cantharidis Nuchæ.

25th. Tongue loaded : bowels costive.

R Pilul. Galb. comp. gr. v,

Extracti Colocynth. comp. gr. v. nocte manequæ.

No particular alteration took place during the few following days, but it was difficult to keep his bowels open.

Oct. 2nd. Pulse 96, rather excited : tongue furred. He has no return of power in his right side ; but as well as we can understand his signs he suffers some pain in his limbs, and points likewise to his left temple.

Applicentur Hirudines duodecim temporibus. Repetantur Medicamenta.

4th. Bowels still very irregular.

Habeat Hydrarg. Submur. gr. j. ter die.

The calomel procured very full evacuations, and after a day or two his bowels became rather too much relaxed, and his motions were always passed in bed. Mild nourishment and a very small quantity of port wine was administered ; but he died on the 15th, having never experienced the slightest amendment since the first attack.

#### SECTIO CADAVERIS.

On removing the calvaria and cutting away the dura mater, a very considerable quantity of limpid serum escaped from beneath the arachnoid, and much was still seen under it. The appearance of the convolutions on the surface was not as if any fluid or quantity of blood were lodged in the ventricles : on the contrary, they were very plainly marked on the right side, and on the left presented an appearance of depression, as if there were some loss of substance below ; and on touching this part it felt flaccid. The arachnoid was easily detached from the convolutions generally, but as it was torn away from the anterior and lateral part of the left hemisphere of the cerebrum, rather anterior to the ear, some medullary matter in a completely softened state came away with it, and a quantity of creamy fluid ran from the opening which was thus made. On further examination, it appeared that the cerebral matter, for an extent of at least two or three square inches, was softened and degenerated ;—I was inclined to consider it in a state of suppuration. The softened portion was irregular, and in most parts undefined in its outline, but in one place was more defined by a consolidated or hardened edge. In most parts throughout, the softened matter was of a yellowish colour, and in some parts the vascularity appeared much increased, so that a complete plexus of vessels was seen lying in the soft matter ; and this appearance of vascularity was derived in a great degree from the circumstance of the medullary matter itself having been dissolved and removed, and leaving the minute

vessels alone exposed and unconnected, though they were probably enlarged and distended with blood. This softened portion involved part of the corpus striatum on the same side, and extended quite to the surface of the brain, where it had been torn away, owing to its attachment with the arachnoid: in one small spot in the posterior part of the hemisphere the same tendency to a local softening had taken place. The whole of the internal structure of the brain was thought rather vascular.

The left lung was slightly hepatized; the right lung was healthy. The heart rather large and flaccid. All the viscera of the abdomen were healthy.

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In this case, as in others of a somewhat similar description, we have difficulty in explaining the symptoms;—we had indeed no opportunity of ascertaining the state of this man before the period of the attack; but as he was at work when it happened, he must at least have been in tolerable possession of his muscular power. The question then is, what was the change which gave rise to the sudden aggravation of symptoms? It is certainly possible that at this moment a vessel gave way, and blood was effused into the substance of the brain, which was afterwards so far absorbed as to leave only a yellow appearance: this, however, is very improbable; for though we do not know the exact time necessary to absorb blood in the brain, still we know that frequently twenty-four days is quite insufficient for the purpose; and long after that time we find more obvious traces remaining than were found in this case, when if any effusion at all took place, it must have been extensive.—Another hypothesis is, that the sudden mischief might have occurred when the softening arrived at some particular part, possibly when it reached the corpus striatum. And another explanation which might account for the symptoms of local pressure on the brain would be, that the pressure was occasioned by an accumulation of the serum found beneath the arachnoid over the softened portion; or by the simple falling in of that portion forming the depression observed in its surface. It is not improbable that whenever a part of the substance of the brain is brought into a fluid state, or even an approach to that condition, it makes an undue pressure on the surrounding cerebral matter; and in this way may be produced many of the symptoms observed in affections of this kind.

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I have thus endeavoured to bring together, in a somewhat regular and connected order, various examples of inflammation in the brain and its membranes; including, first, such inflammatory affections of the membranes as appear to arise spontaneously or from injuries, and which may be considered as pure examples of meningitis, and more particularly of that inflammation of the pia mater and arachnoid which has been generally termed arachnitis. And amongst these, I have introduced several on which the prevailing irritability of the nervous system has stamped that peculiar character which has been ascribed to delirium tremens, and which leads to most important modifications in the treatment. I have then introduced such cases as seemed to illustrate more directly the obscure subject of hydrocephalus. After this, it has been attempted to bring forward cases where inflammatory action of the brain appeared to depend on the irritation set up by disease in other parts, or on some other general disturbance of the system: and while it is evident that the cerebral affection in many cases of fever is distinctly referable to this division of the subject, it is doubtful how far those cases of fever, in which the inflammation of the membranes forms a prominent feature from the beginning, modifies the whole treatment, and frequently affords the only cause for death, should be considered as instances of secondary, or how far they should be viewed as cases of primary, arachnitis. Influenced, however, by the opinions which I have adopted of the nature of fever, I should consider the inflammation of the membranes of the brain in the same light as the inflammation of the intestines,—a consequence rather than a cause of the febrile state: and while in the latter case I should modify my treatment of the fever in accordance with the superadded inflammation and probable ulceration of the intestines, I should in the other case diligently turn my attention to the newly excited inflammation of the brain, attempting by general, and still more by local, depletion, to moderate action, and by the increasing use of mercurials, to prevent the threatened effusion of serum into the cavities.—While on the subject of membranous inflammation, I have thought that erysipelas of the head was sufficiently important to occupy a few pages; and in the treatment of this I have taken occasion to show the probable good effect of local means, in preventing urgent or fatal cerebral mischief. Another source of communicated inflammatory action has been illustrated in those cases of discharge from the nose and the external ear, which not unfrequently terminate, and perhaps some-

times originate, in inflammation of the membranes, or even of the substance of the brain; but which in their commencement and progress are often apparently so unimportant, as to excite less anxiety than is really due to a disease capable of inducing fatal consequences.

Of cases of inflammation of the substance of the brain, much fewer have presented themselves to my observation. I have not met with any very well marked case of that vascular appearance which portions of the brain probably assume in the early stages of inflammation; but I have been enabled to state two distinct instances of superficial ulceration of the cerebral substance, and likewise three cases of what I believe to be true encysted abscess; and two where from injury, destruction of large portions of the brain has taken place, inducing a process analogous to sloughing abscess in other parts of the body, and serving to illustrate three other cases which I have detailed, and in which, without any external violence, similar appearances have been discovered, though without the formation of puriform fluid. Indeed I have been led to conclude that from some peculiarity in the structure of the brain, true pus is a rare product of the inflammation of its substance, and scarcely ever occurs unless some tubercular or scrofulous matter has been previously deposited, or such a change has taken place around the diseased and inflamed part as to form a cyst; in which cases, likewise, the pus puts on a peculiarly tenacious and mucous character. The membranes, however, more frequently form genuine pus; though even in these, except in cases of injury, the inflammation generally destroys life, either by the constitutional irritation it produces, or by the pressure of effused serum before any formation of pus has taken place.

## CASES

### ILLUSTRATIVE OF THE SOFTENING OF THE BRAIN.

The peculiar disorganization of the brain, which has of late been so much the subject of observation by Rostan, Lallemand, and other French physicians, and has in our own country excited the attention of several writers, but more particularly of Dr. Abercrombie, under the appropriate name of *softening*, still presents many difficulties in reference to the morbid action from which it arises, as well as the symptoms by which it may be distinguished. From the following cases, and from one or two lately introduced as instances of a state of brain analogous to suppuration, (Case LXXVIII. LXXIX. and LXXX.) we shall, I think, plainly see, that a softened condition of the brain may exist in various forms; may apparently originate in different states of disease; and may be attended with a variety of symptoms. The symptoms, however, which are most constantly present, and are often the first to excite any serious alarm, are such as denote pressure; and these most commonly attack suddenly, but vary in their progress and duration. In some cases this pressure may in part arise from the preceding disease, as tumour, or effused blood, or collected serum, which acts as the cause producing the change of structure in the brain. In other cases the change of structure itself may occasion pressure, by suffering the parts which have lost their usual elasticity to fall in upon each other, and to press on the brain below; for we always find the convolutions flattened or even depressed above those parts which have been softened by disease: and in some cases serous effusion may accumulate beneath the arachnoid, over that part of the brain which most easily yields; and thus the pressure may be increased. The symptoms of pressure must therefore be considered as secondary consequences of the disease, and their occurrence throws but little light on the nature of the action by which softening is produced. A certain degree of convulsive action is another symptom, which is sometimes present; but as far as I have been able to ascertain, neither that nor the previous occurrence of pain in the parts afterwards affected with paralysis, can be considered essential to the softening of the brain, which is a state of the organ apparently depending upon various causes. But after having detailed some of the cases which I have met with, I shall endeavour to point out the probable sources of this disorganization.

## CASE LXXXI.

*Sudden Hemiplegia ;—Softening of the middle and posterior Lobes of the left Hemisphere of the Cerebrum.*

JAMES KENNEDY, aged 63, was admitted under my care, August 5th, 1829, affected with complete hemiplegia of the right side. All power of voluntary motion and all sensation were lost both in the upper and lower extremity : the face was but slightly affected, his speech was so imperfect that it was only with great difficulty a monosyllable could be obtained from him. He could protrude his tongue tolerably well, it was loaded with a white fur ; his deglutition was somewhat affected, but he could at that time take sufficient nourishment. His intellect was clear ; his eyes natural, and he attempted to answer questions, or put out his tongue, immediately he was desired. Pulse 68, weak.

On inquiring his history, I found that he had a few years before married a woman much younger than himself, by whom he had had three or four children, the youngest four months old. For several years he had been the subject of an open ulcer in the leg, which six or seven months ago was healed up ; and from that time his bowels became very irritable, so that he was much reduced by frequent diarrhœa, accompanied by much pain ; and when at any time the sore became worse, the diarrhœa diminished. He had never complained particularly of his head.

On the 1st, being the fifth day before his admission, at eleven o'clock in the morning, while he was sitting in his bed taking his breakfast, he was seized with a loss of consciousness, so that he fell backwards and was supposed to be dying. In the course of ten minutes, however, he revived, and became again conscious, but had entirely lost the use of his right side and of his speech. From the 1st till the 3rd he was very irritable, and occasionally delirious ; but this had subsided before his admission into the hospital. No further change had occurred, and he had taken no medicine.

Habeat Pilul. Hydrarg. gr. v statim, et Misturam Magnesiae cum Magnes. Sulphat. ʒj pro re nata.

He is ordered to take light nourishment as far as he is inclined.

6th. The bowels not having acted well, the pill and the magnesia mixture were repeated ; and once or twice afterwards it was necessary to assist the bowels by injections. —From day to day scarcely the slightest change could be observed, but he seemed to grow weaker ; and as he passed his urine and fæces unconsciously in bed, or was at least unable to give proper intimation of his wants, it was quite impossible to prevent the sacrum from becoming excoriated, though, to prevent pressure, he was turned frequently on his side by the attendants and the parts were guarded by plasters. In a few days it was necessary to support him, and allow him a small quantity of wine and



eggs, and he had ammonia as a medicine : his abdomen was sometimes distended, and he had hiccup, but this subsided. He occasionally seemed incoherent, and it was with difficulty he could be understood ; this incoherence increased about the 21st, but he still put out his tongue when desired. He gradually sunk, becoming less sensible, but whether from debility or from increased pressure it was not easy to decide. It was observed during the last days of his life that his pulse was in a remarkable degree intermitting, and about 80 in the minute.

#### SECTIO CADAVERIS.

Removing the calvaria, the dura mater was evidently full and distended ; and on raising the dura mater its inner surface as well as the outside of the arachnoid were quite free from moisture ; but beneath the arachnoid serous fluid was effused in unusual quantity, which was observable in a very remarkable way upon the right hemisphere ; for the perfectly limpid fluid lay in large and deep canals between the convolutions, which were rendered peculiarly rounded by the lateral pressure ; and the fluid being colourless, we could see quite to the depths of the convolutions ; and as these intervening spaces were in some instances a full third or half of an inch in width, the vessels of the pia mater were seen beautifully branching over the surface of the fluid. On the right side this appearance was best marked, but on the left the fluid was almost as much effused, only the convolutions were flattened, and the fluid did not lie between them.

The substance of the right-hemisphere was quite natural, but that of the left was obviously soft, particularly at its posterior and lateral part : and on attempting to separate the membranes, the cortical substance tore away with them. A slice being taken very superficially from the top of this hemisphere cut into a portion of the softened brain, showing the cortical substance of a yellowish fawn colour, and the brain itself broken down near the cortical substance like curd. Another slice was taken even with the surface of the ventricles, and here the peculiar disease was still more completely seen ; it occupied at least two-thirds of the posterior and middle lobes, but did not injure the anterior, neither did it seem to enter the corpus striatum or the thalamus nervi optici. The cortical substance was of a light yellowish fawn colour, very soft, and almost broken down into the substance of the brain, while the substance of the brain was as if it were broken and curd-like, appearing in little holes as if absorption had been going on very rapidly. This change seemed to begin near to the

cortical portion, and to proceed inwards, as near the margins of the disease it ran along the edges of the cineritious substance. The line of distinction between the healthy and diseased portions was decidedly marked in the cineritious substance, and in some parts of the medullary substance was likewise marked by the dead white of that which was diseased. There was nothing like undue vascularity in the pia mater, nor was the vascularity greater on the surface of the unhealthy parts. (Plate XIV. Fig. 1.)

The ventricles were distended with perfectly pellucid fluid, and the foramen of Monro was enlarged by its pressure. There was no disease whatever of the parietes of the ventricles, but the vessels on the surface were rather large; the septum lucidum was beautifully perfect and firm. On the upper surface, and about the middle of the left hemisphere of the cerebellum, was a longitudinal depression, of irregular figure and of a brown colour, over which the vessels were distinctly running in the unbroken pia mater; and on cutting longitudinally through this, both the cortical and medullary portions were found to be disorganized, of a yellow fawn colour, and soft. The vessels at the basis, particularly the carotid and its branches, were very much ossified. The lungs healthy, except one or two hard tubercular bodies of very small extent.

The mitral valve of the heart was most extensively diseased, and converted into an irregular bony mass. The liver was hard and granulated, and its acute margin rounded. The spleen small and rather hard. The kidneys a little granulated: there was a large secretion of urine in the bladder, which lost its brightness when heat was applied, and became slightly opaque.

## CASE LXXXII.

*Imperfect Hemiplegia with Coma;—Softening of the anterior Lobe of the left Hemisphere.*

GEORGE BOZLEY, aged 30, was admitted into Guy's Hospital under my care, April 7th 1830, in a state of imperfect paralysis. It appeared from the account of his wife that he had been complaining of great pain in the left side of his head for the last three or four months, without any giddiness, as far as she had heard; and just one month before his admission he came home, complaining of most violent and distracting headache, which had continued ever since, so that he had never returned to work. He had, however, been able to walk about, but had felt a gradual loss of power in the right hand and foot, the fingers having by degrees lost the power of holding small objects; still, however, he was able to walk and to speak, but at one o'clock in the

night between the 5th and the 6th, he was found out of bed, walking in the room and passing his faces unconsciously, and at that time had lost his speech. The power of articulation had never returned, and his hand and his leg had been gradually growing weaker and weaker, so that now, at the time of his admission, he has just power to stand, but not to walk; he can move both his hand and arm and his leg when lying in bed, but he cannot grasp with the hand. He articulates monosyllables only, and these very imperfectly; there is no drawing of the mouth; he frequently starts in his sleep: pupils sluggish and rather contracted: pulse 76, with little power; countenance pallid; bowels open. He has already been cupped and had leeches to his temples, and three blisters applied to his neck and behind his ears.

There appeared to be no indication for active treatment, and I therefore ordered the head to be shaved and kept cool, and a single grain of calomel to be taken three times a day. On the following day, finding that the bowels had not been open, I ordered him fifteen grains of calomel and colocynth. For a day or two there was no change, but on the 12th the oppression was obviously increasing; the right hand was quite powerless and motionless; he yawned frequently and was very drowsy, and his pulse had risen to 96. I now ordered him to lose a few ounces of blood from the nape of the neck by cupping, and omitting the calomel, to take purgatives till the bowels were freely opened. On the 17th he spoke very distinctly some words, but on the 18th fell into a more drowsy state than ever; a few ounces of blood were taken by cupping from the neck without affording relief, and when I saw him upon the 19th he was lying in a deep sleep, with stertorous respiration and frequent twitchings of both arms, but more particularly the left, and, when touched, the twitching returned almost like electric shocks: after much calling and excitement he opened his eyes, but could not be induced to put out his tongue. Pulse 60, oppressed.

*Applicentur Cucurb. cruentæ temporibus, et detrahatur sanguis ad ℥xv.*

*Applicetur Emplast. Cantharidis nuchæ.*

Little change took place, but a gradual aggravation of his symptoms and more particularly of the convulsions, which became general and severe, the whole limbs being occasionally extended; and he died at eight o'clock on the morning of the 21st.

#### SECTIO CADAVERIS.

Raising the dura mater, the external surface of the arachnoid was seen unusually dry; the membranes were neither vascular nor opaque; a small quantity of serum could be traced in the pia mater between a few of the convolutions; but the pia mater and arachnoid adhered so strongly to the brain, that it was not possible to separate them without tearing off some of the cineritious matter: this apparently depended both upon the un-

usual attachment of the pia mater and on the softness of the cortical substance, and it was most striking on the anterior part of the left hemisphere. The different layers of the cortical substance were distinctly marked; but when it tore away with the pia mater, there was no tendency to separate smoothly as is occasionally seen. There was throughout the medullary substance some appearance of vascularity, and a little tendency to mottling from unequal distribution of blood. When the upper part of the hemisphere had been removed nearly to a level with the top of the lateral ventricles, there was a distinct softening discovered in the medullary substance to the outer side of the left corpus striatum; this was perfectly white and did not cut with an even surface, looking slightly curdled after the knife had passed through it; it occupied altogether an extent equal to a small egg, and implicated part of the corpus striatum itself, and was traced quite to the fissa Sylvii, where it was not easy to distinguish the cortical portion in the softened mass: at this part there was some discoloration, but it appeared to depend on irregular vascularity, rather than on effused blood. There was at this part much disease in the arteries, which as they lay in the fossa Sylvii were indurated and cartilaginous, and this disease was gone to a great extent in the carotids, and the arteries forming the circle of Willis, which were spotted with bony and cartilaginous deposits. No unusual quantity of fluid had collected in the ventricles or at the basis. The sinuses were healthy.

All the other viscera of the body were free from any serious disease.

### CASE LXXXIII.

#### *Softening of the Brain, with great Vascularity of the Pia Mater.*

JOSEPH MURRIDGE, aged 28, was admitted under my care into the Clinical ward, October 4th, 1827. He was suffering at the time under a partial paralysis, well marked by the slight deformity of the features of his face, and the feeble unsteady action of both his arms and legs; while at the same time the vacancy of his countenance, his slow, embarrassed and uncertain mode of expression, sufficiently pointed out that his mind had suffered greatly by the disease.

It appeared that he was one, of a considerable family, who had grown up to years of manhood in health,—that he had from his infancy been a child of placid and mild disposition, but had been affected with headache generally referred to the forehead, and occasional giddiness, almost as early as he could make his feelings known; so

that it had been the care of his parents to keep him from employment on the water, in which most of his brothers were occupied, fearing lest he should, in his fits of giddiness, fall into the water and be drowned. He was bred up therefore as a carpenter; and although never free from his former ailments, yet they appeared to be wearing out, till about three years ago, when they manifestly increased, but scarcely ever became the subject of medical observation till within the last eighteen months, when he had some leeches applied; and it was about this time that he had a fit, in which he lost his senses for a few minutes: but as far as we could ascertain, this was not followed by any fixed paralysis. A few weeks after this he sailed for China, and was more free from pain in the head during the voyage. He remained three months in China, and although the weather was by no means hot, he suffered from it much, and in rather a sudden manner found his mouth drawn to the left side; his left leg rather benumbed, and the motion of it somewhat impaired, but he does not recollect that the left arm was at all affected. During his voyage home he was for some time on the sick list; and though he had less pain than while on shore, he was both bled and cupped for occasional pains in his head.—When admitted, he had been four months returned from China; and from the imbecility of his mind and his obviously impaired memory, he was able to give but a slow and somewhat confused history of his complaint. He stated, however, that since his return his headache had continued, with occasional vertigo, and that both his hearing and his sight had become affected: he said that he now felt his head heavy; that the pain was not constant; and he always pointed to the forehead, a little to the left of the centre, as the exact seat of pain: he said that he sometimes appeared to lose his senses entirely. His sight was dull, but equally so on both sides; his pupils acted when light was admitted, but the right pupil remained the most dilated. On laughing, the mouth was drawn to the right side; and on attempting to whistle, he was not able to close his lips on the left side. There was no fixed paralysis of the limbs on either side, but a general debility and loss of the power of motion. Pulse 80, natural: tongue rather foul at the base: appetite somewhat impaired, but had occasionally been voracious: bowels inclined to be costive. During the first three days that he was in the hospital, we had an opportunity of observing the imbecility of his manner; he seemed frequently as if lost; he would often stagger as he walked across the room, and he said that he sometimes felt as if he should fall. When he stood for a few minutes his legs, particularly his right leg, often began to tremble, and sometimes his right arm would give a sudden spasmodic shake.

There could be no doubt, from the whole history of this case, and its gradual progress, more particularly for the last eighteen months, that some chronic change was going on within the brain; and the decided reference of pain to one place on the forehead, and the loss of intelligence, led me to fix my view on the cerebrum as the seat of the mischief: while the paralytic affection being most marked on the right

side, induced the belief that the left hemisphere was the part more immediately implicated—I imagined it probable that some tumour was forming, and gradually encroaching on the healthy structure of the brain on that side.

I ordered an ointment of the tartarized antimony to be extensively rubbed in upon the neck and between the shoulders, and the bowels to be kept regularly open by pills of the compound extract of colocynth and galbanum.

8th. Lying in bed on account of pain in his head. His bowels had been freely open; a cold lotion was ordered to be applied constantly to his shaved head.

10th. The pain had subsided; the pulse was weak. It was observed that he had frequent eructations, particularly after eating; that the tremors were more frequent, and the vision of his left eye more obscure. He was up as usual.

11th. Increased tremor.

13th. Feels better, less pain in the head; sight more perfect, but objects appear double; tremor less frequent and violent.

14th. Less pain in the head, particularly in the afternoon; urine clear and natural: motion of both hands, but more particularly of the right, considerably embarrassed; cannot raise a small object so well with the fingers of the right as with the fingers of the left hand.

21st. Pain in head increased; has been often seized with giddiness, and is obliged to be led to his bed. He does not appear this morning to pay attention to questions which are put to him, and he lies with his eyes fixed in a vacant stare, without noticing any particular object. Bowels freely open; pulse 84.

*Applicentur Hirudines xij fronti. Embrocatio communis capiti.*

23rd. Severe headache: tongue much loaded.

24th. Bowels open; seems scarcely to understand the questions put to him.

*Embrocatio communis capiti raso. Empl. Cantharidis nuchæ.*

25th. Is more sensible; but although capable of speaking, he only utters a few words which have no reference to the questions put to him: he frequently puts his tongue out of his mouth as if in answer to some request, though not desired to do so, and lets it remain half out of his mouth. Tremor of the right side of the face and violent spasmodic tremor of the right hand, which is drawn up towards his chest and seems to have lost its power of voluntary motion. Tongue more loaded: urine passed involuntarily in bed.

*Applicentur Hirudines xx temporibus.*

26th. Is able to answer questions better. The left eye appears to project more than natural; but this is probably only owing to his inability to close the upper eyelid, and the increase of vascularity on the conjunctiva from the exposure to the air. Pulse 80, weak and small: firm contraction of the fingers of the right hand; and it appears



to give considerable pain or some very peculiar nervous sensation when his fingers are forcibly opened. Urine passed unconsciously : tongue greatly coated.

*Applicetur Hirudines xij temporibus.*

27th. Seems to understand questions better : several copious stools, procured by injections, passed in bed : tongue loaded : pulse weak and small.

*Applicetur Emplast. Cantharidis vertici.*

28th. Is said to sleep more ; less tremor of hands and face. The only nourishment he has taken for some days has been a small quantity of beef-tea and some arrow-root. Tongue very much loaded : gums slightly affected by the mercury.

*Hydrarg. Submur. gr. j omni nocte.*

29th. Seems to have lost the use of his right hand altogether, yet indicates more intelligibly that he experiences some pain in his head.

30th. Feet, legs, and hands very cold ; pulse 78 : tongue rather cleaner towards the tip : bowels freely open by castor oil.

31st. He is less sensible and more inclined to sleep, yet appears to perceive when he is spoken to ; does not attempt, however, to protrude his tongue when asked ; conjunctiva, more particularly the left, injected and dry, partly from exposure by not being closed : face flushed : pulse 96, weak : feet and hands warm.

*Applicetur Emplast. Cantharidis vertici.*

Nov. 1st. Drowsy, but protrudes his tongue when desired. Fingers of right hand contracted ; pulse 96.

2nd. Lies constantly in the position in which he is placed. when desired he can raise the left hand, but does not raise the right : pulse 100, weak : bowels open.

3rd. Occasional flushing of face and perspiration ; breathing becoming more stertorous ; the act of deglutition often excites cough, so that the food is forcibly ejected : pulse 114.

5th. In spite of every care by turning him occasionally on his sides and applying receivers to catch the urine which constantly flows, and changing his sheets twice a day, the nates are beginning to excoriate.

8th. Appears rather more sensible, and he certainly feels when pinched pretty hard in different parts of his body and extremities : pulse 120 ;—yesterday afternoon he was found to be more sensible, and ate something.

9th. Pulse very quick ; he appears to notice objects more.

11th. He retains any thing which he takes into his mouth a long time before he swallows it.

12th. In a profuse perspiration at the time of the visit. He had not moved either of his limbs for the last three days, but just as he is placed he remains. In the evening he sunk very rapidly, and died at 11 o'clock, P. M.



## SECTIO CADAVERIS.

On raising the skull and removing the dura mater, a most remarkable appearance presented itself, the two hemispheres being totally dissimilar in regard to vascularity. The left hemisphere was covered with pia mater so perfectly vascular as to render the whole of a deep rich red colour, and nothing could be more beautiful than the vascularity; this, however, was far more remarkable on the posterior third or half; there was no effusion, and the convolutions were soft, and seemed of their own weight to subside and become flat, so that the left hemisphere had the appearance of being larger and broader than the other. The right hemisphere was nearly natural, except a slight serous effusion beneath the arachnoid. (Plate XV.) On making a horizontal incision through the whole of the cerebrum, rather below the usual place, two extensive softening of the brain displayed themselves in the left hemisphere: one in the anterior lobe of the cerebrum; the other, still more extensive, in the posterior lobe. The disease was marked in a degree which I never before witnessed, the colour a little more gray than the natural brain, and showing some vascularity from the points of cut vessels, but chiefly from small vessels which seemed to be drawn out by the passing of the knife through the substance. The smaller mass of this disease in the anterior lobe was a good deal above a square inch in size, and of irregular form; having a defined line of separation from the natural brain internally, and extending outwards and forwards to the convolutions, softening the cortical part: it was even thought that the edge which bounded it internally from the healthy structure, was actually firmer than the natural brain: it was at least defined very exactly and acutely. The larger mass of disease in the posterior lobe was less defined in its extent, and involved the cineritious substance in such a way that the distinction between it and the medullary portion was quite lost; and on examining the upper part which had been removed, it was found to occupy nearly one half of the whole hemisphere, and to reach nearly to the vertex. (Plate XVI.)—During the two days that the brain was exposed for the purpose of making drawings, the difference with regard to the softness of the diseased and healthy part became every day more marked, and was indeed truly striking. The convolutions became flatter every hour; and at last, while the healthy part retained its firmness almost unaltered, the softened portion in the centre

became semifluid, the membranes supporting the outside and keeping it together. The disease did not seem to affect either the optic thalami or the corpora striata; but in the anterior lobe, on the inner side of the softened portion, was a place of the size of a small bean which was even softer than the rest, and from its defined limits suggested the idea of its having been of the nature of an apoplectic clot,—this however was by no means certain.

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The most prominent symptoms in this case were those which indicated pressure; and this was very sufficiently accounted for by the soft condition of the brain, allowing one part to make pressure on another, and producing the same remarkable flattening of the convolutions which is observed where fluids are collected in the ventricles or blood is effused into the substance of the hemispheres. It cannot be denied, however, that in all cases of this kind, other less obvious causes than pressure may have their influence on the symptoms.

#### CASE LXXXIV.

##### *Apoplexy from Cerebral Congestion, with partial Softening of the Brain.*

Two years before his death, Mr. H., aged 73, was suddenly reduced from comparative affluence to a state of penury through the bad conduct of a partner. The news of his partner's having absconded was first communicated to him in one of our public dockyards, where he had gone for the purpose of transacting business. On receiving this information he immediately fell down insensible from the sudden accession of a fit of apoplexy. After a time he recovered from this attack sufficiently to write for one of the weekly journals, although his memory became defective and his head frequently confused, so much so as sometimes to prevent him from doing any thing for a day or two at a time. The first fit left him with much general debility, which his wife thinks was greater upon the left than the right side. About ten months ago he had a second fit, of nearly the same severity as the first. After this (from his wife's account) he was never able to engage in any occupation, as his former state of debility was very much augmented and the head symptoms considerably increased in severity. He had a third seizure about three weeks ago, whilst attempting to get from the bed to his chair. He was then bled from the temporal artery very profusely, and had some aperient medicine; but the surgeon who bled him did not again see him, nor had he had any further attention paid to him from that time till the latter end of June 1828, when he came under the care of my friend Dr. Stephen Hall, from whom I received the following account.

June 24th. Since the bleeding has at times been tolerably sensible, but in general

either lies in a comatose state or is muttering unintelligibly to himself, at the same time pointing with his finger to some imaginary object, his eyes being fixed upon the pointing finger with a vacant stare. He occasionally answers coherently; and if one of those fits of aberration is not present, does as you direct him. The pupils of the eyes are sensible to light. There is no strabismus. He appears to have lost almost all power in the right hand at the present time, as well as in his legs; he cannot grasp with his right hand nor straighten his knees, and any attempt to draw them down causes him to cry out violently even when he is too insensible to say why he does so. The temperature of these parts is the same as the other parts of the body, and the sensation does not appear to be diminished. The surface generally is rather hotter than natural. Pulse quick and sharp. Tongue rather furred, does not tend to either side when protruded. Bowels have not been moved at all since the day before yesterday, and then only scantily. Respiration easy and natural. Gets very little sleep. Passes his urine well, and generally gives notice of his desire.

He appeared to continue in much the same state until the 3rd of February, when he was reported to have been more conscious, as on that day he repeatedly spoke rationally to his wife, and knew those about him. He also had more power in his right hand, but an attempt to straighten either leg produced the same complaint. This favourable change continued for two or three days, after which he sunk into a comatose state, from which nothing could rouse him; and he died on the 9th of February. During this time there was considerable fever present, as indicated by dry skin and tongue, and the pulse was quick and small.

#### SECTIO CADAVERIS.

The head was opened forty-two hours after death. On removing the dura mater its inner surface appeared softer than natural, as if it had been macerated, which softened part could easily be removed by the point of the finger. The whole convexity of the hemispheres appeared covered with a semi-gelatinous fluid, which on close inspection was found to be serum contained between the arachnoid and the pia mater. On puncturing the arachnoid with the points of the scissors the fluid flowed slowly out. The vessels of the pia mater were much injected. The medullary substance of the brain had every where an unnaturally brown appearance, but was firm; the ventricles were fully distended with clear fluid; the plexus choroides turgid and florid: the fornix and septum lucidum particularly soft; and the walls of the ventricle in general, white with a few finely injected vessels running on their surface. At the base of the brain there was a large quantity of fluid, and on the tuber annulare and part of the base of the cerebellum, the arachnoid was raised and filled in the same man-

ner as in the convexity of the brain. In each of the posterior lobes of the cerebrum there was a softening in the substance of the brain, partly involving the cineritious and partly the medullary structure. To these there was no defined boundary; but the softening was greatest in the centre, from which it gradually became less observable till it was lost in the unaltered structure of the brain. The space occupied by this changed structure was on each side about the size of a shilling; the fluid, in the centre, of the consistence of cream and of a grayish blue colour. The sinuses did not contain more blood than usual. There was no appearance of any vessels having given way, nor of clot, unless these softened places might be considered as originating in this.

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In this case there is great reason to believe that no material vessel was at any time ruptured, but that the successive apoplectic fits depended rather on a state of congestion in the vessels generally, producing slight laceration of the fine branches, chiefly at the union of the cineritious and medullary matter, which probably never completely regained their natural condition after the first attack. At the same time no decided paralysis was the result of the first seizure; and though from time to time there was evidence of the return of a state of vascular fulness, marked by the temporary loss of memory and the confused state of mind, yet even his mind was generally capable of active employment for above a year, when the recurrence of a similar attack more completely destroyed his power of exertion both mental and bodily, still without inducing fixed paralysis. By the third attack, which took place about six weeks previous to his death, it is probable that the more complete disorganization of the injured portions of the brain was effected: decided paralysis followed, confined to particular parts and chiefly to the nerves of motion; and during the last three or four days he became completely insensible and comatose, from the pressure of the serum which was accumulating in the ventricles and beneath the arachnoid. It may fairly admit of a question, whether in this last attack the disease did not assume an inflammatory character. The quick and sharp pulse, the furred tongue, and the hot skin, all appeared to indicate the existence of inflammation; and the pulpy state of the arachnoid lining the dura mater, and the vascularity of the pia mater, seemed to point to the same condition, independently of the serous effusion and of the softened state of the portion of brain at the junction of the cineritious and medullary substances, which might possibly be the result of congestion.

## CASE LXXXV.

*Disorganization of the Right Corpus striatum.*

SAMUEL GRAYER, aged 40, was admitted under my care into Guy's Hospital, Jan. 21st, 1829,—a tall rather athletic man, who had served many years in the army, and had received several wounds, the scars of which might be traced upon his head, and one more particularly near the centre of his forehead—a cut, under which was a slight depression made by a sharp instrument cutting the bone. He was labouring under general muscular and mental debility, strabismus, and double vision: his left arm and leg were evidently rather weakened, and his walk was unsteady, as if he were giddy; there was no paralysis of the muscles of the face, and he protruded his tongue naturally: he had no difficulty in deglutition, but he passed his urine unconsciously in bed. His manner was peculiar, and his conversation quite incoherent; he stood for some minutes together in one position, as if lost in abstraction; when spoken to, he answered a question with some consideration—apparently correctly, but then at once ran on to something else, without however saying much, but making some statement perfectly without foundation; as for instance, saying that he was bled this morning, that the blood flowed well, and did him a great deal of good;—all which was most distant from the fact.

It appeared from his friends that his present illness had been coming on for about a year; and the first circumstance which attracted particular attention was his falling down in the street without any cause, and for a moment or two losing his recollection; and this had happened several times, but had been so transient that there had almost always been a doubt whether it was accident from weakness in the leg, or a kind of momentary seizure. He had complained constantly of pain in the forehead, and giddiness, had had frequent fits of absence, the power in the left side was evidently impaired, and there was some loss of sensation in the same part. For the last six weeks he had passed his urine in bed almost every night, and occasionally his fæces.

25th. Complains of pain over the right eye, and is so confused in mind as not to know his own bed; and he always seems lost and indistinct in every answer he attempts to make. Urine copious, rather high-coloured, and coagulating considerably by heat, becoming quite white and flaky.

*Fiat Setaceum Nuchæ.*

*Habeat Pilulæ Hydrarg. gr. v omni nocte, et Haust. Sennæ mane quotidie.*

30th. *Applicentur Hirudines x temporibus, et Repetantur medicamenta.*

Feb. 2nd. He denies having had any leeches applied, though the marks are on his temples.

6th. *Sulphat. Zinci gr. j ter die. Repetantur Pilulæ et Haust. Sennæ pro re nata.*

9th. Pupils inactive and contracted, particularly the left pupil. He complains of pain in the forehead, but he cannot be implicitly believed.

Omittantur Pilulæ Hydrargyri.

Augeatur Zinci Sulphas ad gr. ij ter die.

13th. Augeatur Zinci Sulphas ad gr. iij ter die.

Applicetur Emplastrum Cantharidis fronti, et Adhibeatur postea Unguent. Sabinæ.

20th. Augeatur Zinci Sulphas ad gr. iv.

23rd. Strabismus chiefly of the right eye, which is drawn towards the inner corner, and he complains that he sees objects double; bowels open; he does not so frequently pass his urine in bed.

Augeatur Zinci Sulphas ad gr. v.

27th. Pulse 84; weak; complains of feeling cold: there is no marked change in his symptoms.

Ferri Subcarb. ʒj ter die.

March 2nd. He was taken last night worse than usual; could scarcely see at all, and has been unable to rise from his bed: yet, except increased dulness, it is difficult to perceive any decided change in his condition.

Omittantur Medicamenta omnia.

10th. Is now in his ordinary state.

Habeat Pilul. Aloes cum Myrrh. gr. x omni nocte.

13th. Walks more steadily, and does not pass his urine in bed so often.

23rd. He often passes his stools in bed.

Quinæ Sulph. gr. j ex Infus. Rosæ ter die.

Pil. Aloes cum Myrrh. gr. x mane quotidie.

Through the months of April, May, and June, very trivial changes took place. He took for some time a dram and a half of Valerian three times a day; for three weeks he took from two to three grains of the Nux Vomica, but with little effect upon his general ailments. Blisters to the nape of the neck and the electrical sparks taken from the spine were equally inefficacious. The Tinctura Cantharidis in doses of twenty drops appeared to have some effect in preventing him from passing his urine in bed so frequently, so that in May and June his bed was never wet; which, however, was in part owing to the night nurse taking the precaution to wake him up in the middle of the night.

July 8th. Seemed more stupid than usual, and in other respects not quite so well.

Applicetur Cucurb. cruentæ inter Scapulas et detrahatur sanguis ad ʒviij.

10th. His general manner and aspect quite unchanged; he stands about musing,



and if you ask him how he finds himself, answers, after a few seconds of consideration, "I am not quite dead,"—says he has hurt his thigh, and that there are wounds in two places: but on examination there are only two old scars from wounds he had received in service: he complains of weakness of the whole left side, but then says he feels rather better.

13th. He appeared more than usually dull and heavy. From this time his imbecility increased so much, that in a day or two he was not able to leave his bed, and was unable to support himself on his legs; the difficulty of swallowing became very urgent, and he complained of great pain in the legs. He died on the night of the 23rd.

#### SECTIO CADAVERIS.

A considerable quantity of adipose matter over the abdomen. The right side of the face quite purple with gravitated blood, the head having been lying on that side: on removing the scalp some fluid blood in the vessels on the right side, owing obviously to gravitation; two distinct but neither extensive nor deep marks, from the wounds he had received, were seen on the frontal bone rather to the right of the middle line. The skull was rather hard, but not thickened, nor did it show marks of irregular deposition of bone, except on the inner side just beneath one of the external wounds. Here a slight irregularity with depression of half the size of a sixpenny piece, and a small point of projecting bone running towards the brain, were very visible; but they had scarcely made a depression on the convolutions. The dura mater was healthy externally; but on raising it from the arachnoid several very slight bands of adhesion, fine as transparent threads, were observed: at the situation of the glandulæ Pacchionæ the adhesions were unusually firm; but on the right side a very firm adhesion of the dura mater to the arachnoid existed over a space of two inches square; so that in some parts the arachnoid and pia mater were stripped off with the dura mater, and over a considerable part the cineritious matter tore away with the membranes, and could not be separated from them except by scraping; this unnatural adhesion extended over the anterior portion of the middle lobe quite to the foramen lacerum.

In all other parts of the brain the arachnoid and pia mater separated quite freely, was not unusually vascular, but a little firmer than natural, and there was decided serous effusion between all the convolutions.

The cut portions of the brain presented no excessive vascularity, but the ventricles were filled with about an ounce of clear fluid; the cornua dis-



tended; the foramen of Monro wide open: the ventricle between the laminae of the septum quite full; the plexus choroides pale, with some vesicular bodies.

On the right side the corpus striatum was quite flattened, and of a yellowish colour, particularly at one part; some slight adhesions were also formed between it and the opposite surface of brain. The corpus striatum felt quite soft; and on making a section through its substance was completely softened and broken down, with a filamentous and watery brown appearance. This diseased condition occupied above two thirds of the corpus striatum; all the other parts of the brain were healthy. (Pl. XIV. fig. 3.)

The heart was rather large, but free from disease; the lungs slightly adherent, but healthy. Colon greatly distended, with flatus: liver rather small, but healthy. The kidneys not perfectly healthy in any part of their structure, but the right kidney much diseased—the superior half had lost all its usual character, was of a yellow white colour, and on being cut into was found to contain two abscesses.

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Taking a review of the Cases I have just stated, we find Kennedy (Case LXXXI.), a man rather advanced in years, in whom the symptoms of pressure came on quite suddenly, and the hemiplegia was as perfect as if extensive effusion of blood had taken place; nor, in the absence of correct information respecting premonitory symptoms, was there any one circumstance, as far as I could discover, which might not have arisen from such a cause. There was nothing in the appearances presented after death which denoted that excessive vascularity had preceded or attended the attack. The diseased portion was quite white, very soft, and had a tendency to assume a curd-like form; the cineritious substance by which it was surrounded was contracted, appeared thinner than natural, and of a yellower colour, which increased very much on exposure to the air. The disease of the medullary substance seemed to commence from the parts in contact with the cineritious, spreading further along the edges than it did more internally. It certainly produced in my mind an impression, that the proper supply of blood had been cut off by some change in the vessels of the pia mater, or some obstruction in their passage through the cineritious substance, and that in this way the death and the disorganization of the brain had been produced. (Plate XIV. Fig. 1.)

In Bozley (Case LXXXII.) we have symptoms of a less sudden character; continued pain for three or four months, and hemiplegia coming on latterly, but never so complete as in the former case. I am, however, inclined to view the two cases as very analogous with regard to the nature of the operation on which the softening depended; the appearance of the medullary part was nearly the same in both, and in both, extensive change had taken place in the cineritious substance, while in both, ossification of the arteries might well be considered as laying the foundation for defective circulation.

In the case of Murrige (Case LXXXIII.), who was only 28 years of age, a long continued tendency to headache and vertigo was followed by one or two sudden seizures, and these by gradually increasing imbecility of mind and weakness of body. The excessive vascularity of the pia mater externally, corresponded with the extent of disease within, and was by far too great to be considered as an indication of recent inflammatory action. The diseased portion of brain was of a dead grayish white colour, with a few vessels lying in its soft substance, but with no extraordinary vascularity: it rather seemed as if a few vessels had been distended on account of having lost their usual support from the structure through which they passed; and the cineritious matter, so far from being strongly marked, was scarcely to be traced, and was confounded with the soft substance of the brain. The appearance presented gave the idea of parts suffering change from want of sufficient nourishment, rather than from inflammatory action, and the vascularity of the pia mater seemed to depend on congestion in the fine arterial branches. Two solutions might certainly be given of the phenomena: either that the blood was obstructed in its passage, and thence the badly nourished parts of the brain perished; or that the disorganization of the brain having first taken place, the vessels not being able to transmit the usual quantity of blood, suffered congestion. This case is in some respects analogous to that of Stuve (Case XXIV.), and yet in other respects may be considered the converse of it. In both congestion had taken place, and in both some degree of softening had accompanied that condition; but in Stuve the obstruction was obviously in the large veins, and this had thrown the blood back upon the brain, so as to produce numerous small clots of effused blood in its substance: but in the case of Murrige, the obstruction seemed to be placed in the course of the circulation as it passed from the small arterial branches

into the brain, and thus the congestion was produced in the arteries on the surface of the brain. In Stuve, some degree of softening had taken place from the breaking down of the substance of the brain by a kind of laceration, and the softened portion was mixed with small quantities of blood. (Plate VI.) In Murrige, on the contrary, the brain seemed to have lost its texture from deficient nourishment, and no blood was mingled in the softened mass. (Plate XV. & XVI.)

In the case of Mr. H., (Case LXXXIV.) the softening was rather to be ascribed to congestion and the rupture of small vessels, as in the case of Stuve. He was an elderly man, attacked suddenly, but recovering to a certain degree, without having suffered any decided paralysis; a second and a third attack, however, left him partially paralytic, and he gradually sunk under somewhat typhoid symptoms.

In Grayer (Case LXXXV.) we find a man past the meridian of life, suffering one or two slight momentary attacks of vertigo, and falling gradually in the course of many months into a state of mental imbecility and general weakness. The appearances after death were confined to the softening of the corpus striatum on one side, and this was of such a character as to render it probable that it owed its origin to the effusion of blood in that part; at the same time it had not the precise appearance of an apoplectic clot, but the corpus striatum was reduced to a reddish brown and softened mass, without any apparent attempt having been made to form a cyst. (Plate XIV. Fig. 3.)

In the case of Sidney (Case LXV.) there is little doubt that the extensive yellow softening which surrounded the tumour was a secondary effect, resulting either from slow inflammation or from mechanical causes (Plate VII.); and the same may be safely concluded respecting that softened margin which frequently surrounds tumours or apoplectic clots shortly after the effusion has taken place. So likewise, in cases of serous effusion, we occasionally find the commissures of the brain and the parietes of the ventricles softened by contact with the fluid. The destruction of the consistence of particular parts of the brain which takes place in certain cases of inflammatory action, or those at least which have been considered as such, has been illustrated in Cases LXXVIII. LXXIX. LXXX. and forms another modification of this morbid phenomenon. (Plate XIV. Fig. 2.)

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Thus we perceive that partial softening of the brain probably owes its

origin to a variety of causes, and to a considerable range of morbid action ; and we may therefore conclude, that however much the symptoms of the confirmed disorganization may approach in all cases, and may generally evince proof of pressure, and of interrupted nervous susceptibility and action, yet that the symptoms which mark its progress and approach will vary greatly ; and this conclusion will be borne out by a comparison of the symptoms in the cases to which I have had occasion to refer. Although it is possible that inflammation may exist without being attended by very striking symptoms, yet I am inclined to make a threefold division of cases in which a softened condition of portions of the brain exists. First, where from obstructed circulation the part undergoes a change analogous to gangrene ; and this is the more genuine form of the disease (Case LXXXI. LXXXII. LXXXIII.) Secondly, where from congestion the substance of the brain suffers a more or less complete laceration (Case XXIV. LXXXIV.) ; and under this division might be classed all those cases in which the disorganization is secondary, and to a certain degree mechanically dependent on the presence of tumours, or effused serous fluid, or apoplectic clots. (Case LXV.) And thirdly, where softening is produced by inflammatory action. (Case LXXVIII. LXXIX. LXXX.)

It must however be remarked, that in these observations I speak only of partial softening with disorganization of the brain ; not including those cases in which the whole substance of the brain is found unusually soft, a condition which often occurs when the body has been greatly debilitated and worn out by disease, but seems not to interfere with the structural integrity of the organ.

Dr. Baillie, in his incomparable manual of morbid anatomy by which the attention of modern physicians was chiefly drawn to the study of Pathology, speaks of the softening of the brain as it is described more particularly by Dr. John Hunter, in the *Gulstonian Lectures* read before the College of Physicians in 1796 ; and he refers to its occurrence under two forms—in advanced age, and combined with apoplectic effusion ; though by a remark he afterwards makes when speaking of the effusion of blood into the brain, it is doubtful whether he considered it in the latter case a disease existing previously to the rupture of the vessels, or a consequence of the mischief. The fact appears to be, that it occurs in apoplexy under both of these circumstances, and cases illustrative of both will be found recorded even in the present volume.

With regard to the treatment of cases in which we are induced to suspect that the softened disorganization is taking place, it will of course vary according to the cause: as long as we are obliged to infer excessive action we must deplete, and use counter irritation; but looking to the general condition of those who are the subjects of such disorganization, we should be inclined to prohibit active depleting remedies, as likely to diminish the powers of the system. Nor can we suppose that the mercurial action would produce any good effect. On the contrary, whatever is calculated to disturb the more healthy and natural actions may be expected to do harm, and probably the careful avoidance of every thing which can over-excite either the body or the mind, with the employment of gentle tonic remedies, both as medicine and as diet, and even as occupation and amusement, will be most effectual in delaying the mischief, or in supporting the frame under its gradual decline. To what period life may be prolonged, when a considerable extent of the substance of the brain is diseased, we have not the means of asserting; but that large portions of the brain may be lost with apparent impunity has been proved in many instances; and in some of the foregoing cases there is reason to believe that the mischief had existed several months, attended however with great functional derangement. Whether healthy brain be ever regenerated is very doubtful; but as to the power of Nature of repairing in some degree the injuries of the brain there can be no doubt: and there is reason to believe that parts of the substance which have been lacerated by blows or by apoplexy, and thus rendered useless, are frequently absorbed; but how far the powers of the system are sufficient for such an operation, where, as in the cases of Kennedy or Murrledge, spontaneous change has taken place, remains a matter of speculative opinion; at all events, one of the best objects we can propose in the treatment, is to give force and vigor to those natural actions by which such reparations are effected.

## SECTION II.

### P R E S S U R E.

IN the arrangement of the Cases in the present section, I shall proceed from the simplest causes of cerebral pressure, to the more complicated and severe : first relating such cases as are calculated to illustrate the effects of simple vascular turgescence : then those in which the symptoms appeared in part to have depended on the pressure of serum effused either beneath the arachnoid or into the ventricles : thirdly, cases in which blood has been effused from ruptured vessels : and fourthly, those in which some other organic change, whether the result of simple inflammation or of peculiar action, has given rise to pressure.

## CASES

### ILLUSTRATIVE OF THE EFFECTS OF CEREBRAL PRESSURE FROM VASCULAR TURGESCENCE.

The symptoms induced by this state, when it comes on suddenly, are vertigo, loss of consciousness, loss of voluntary power, and not unfrequently convulsions :—and hence the difficulty of drawing a correct diagnosis between apoplexy from congestion, and certain epileptic attacks. There is in truth scarcely any precise distinction to be recognised ; the same state of the vessels apparently inducing both, and the one passing imperceptibly into the other—the convulsive nature of the symptoms marks the chief difference, and this probably depends rather upon some original irritability of the brain, or on the part which chiefly suffers from congestion, than on any difference in the exciting cause. When cerebral congestion takes place more slowly,—either as the effect of narcotic poison or creeping on with the course of years, or as the result of habitual indulgence, or arising in the progress of disease,—it is marked by increasing listlessness, by drowsiness, lethargy, and complete coma ; while temporary numbness, or loss of sensation, or depraved sensation, is often experienced, and towards the close not unfrequently convulsion.

The first of these forms often admits of being greatly and speedily relieved ; and though apt to return, may by care be warded off for a long period. The latter, that is the more slow and the chronic form, is less immediately under the controul of medicine ; but when it depends on the action of narcotics, will admit of being greatly relieved by treatment, allowing the effects of the poison to subside, and when it arises from any definite disease, its removal depends on the cure of the original disorder.

### CASE LXXXVI.

*Seizures of a mingled Apoplectic and Epileptic character, from Cerebral Congestion.*

JAMES EAMES, aged 60, was admitted into Guy's Hospital under my care, September 10th, 1829, in a state of great feebleness, with occasional vertigo, from an attack of a mixed apoplectic and epileptic character, which he had experienced a few days previously, and for which he had been cupped : he was a stout-made man, with a bald head and short neck, 'exanguine in his appearance, I believe from the frequent necessity of losing blood. I had seen him before, and was no stranger to his history. Six years previously, while he was walking, he was first seized with giddiness, and on



the following day experienced a more severe attack with loss of sight and of consciousness. He was twice bled from the arm, was freely cupped, had cold applications to the head, and gradually recovered, not having suffered during the whole attack any paralysis. Three years and a half afterwards he had a similar seizure, and again about a year after that; subsequently to which he was in the hospital, under the care of Dr. Cholmeley; and while still in the House about a year ago, he had a more severe attack, greatly resembling apoplexy, in which he remained perfectly senseless for several hours, but this was attended with spasmodic action of all the extremities. He was cupped, and recovered pretty speedily, but remained feeble for several weeks; and about six months afterwards had another similar attack. As he was free from the immediate severity of the fit at the time of his being received under my care, I had recourse to gentle purging and afterwards to tonics, and on one occasion was obliged to cup him at the neck; under this plan of treatment he gained strength rapidly, and left the House in about a month.

### CASE LXXXVII.

*Seizures of a mingled Apoplectic and Epileptic character, with great Cerebral Congestion.*

AUGUST 23rd, 1829, at eight o'clock in the morning, I was requested by Mr. Church to see a gentleman. I found a man of 59 years of age, of very full habit, with a short neck, and bloated countenance, and was informed that he had been in his usual state of health till about six o'clock on the previous evening, when being at the house of a friend playing billiards he complained of giddiness and of seeing the balls indistinctly; and when he got home about half-past eight o'clock fell senseless in a fit, with considerable convulsion. About half-past nine o'clock he was bled to sixteen ounces, and took ten grains of calomel: he became gradually more sensible, and seemed to sleep for some hours. About three o'clock he complained of pain in the head, and at about six had another fit, with a good deal of frothing at the mouth, when he was again bled to sixteen ounces.

When I first saw him he lay rather restless, but apparently sleeping, he was snoring, which I understood was his habit, and when roused answered questions, then dozed again. No limb was paralysed, though there appeared to be a little drawing of the mouth to one side—this, however, so slight as to be doubted: his bowels had not acted: pulse tolerably good, and not much oppressed: pupils rather contracted.

I ordered a purging injection, ice to the head; and if the fit returned, cupping from the neck.

12 o'clock. Almost immediately on the application of the ice a shivering followed, and a fit like the former. Twelve ounces of blood were taken from the arm: he became cold and faint, but recovered a little after; and when I saw him at twelve

o'clock he was nearly in the same state as when I had seen him in the morning,—drowsy and lethargic, but capable of being roused pretty easily, and answering questions: bowels slightly open by the injection: pulse about 90.

Habeat.Olei Tigllii  $\mathfrak{m}$  iij statim, et Repetantur post horas quatuor.

Applicetur Emplastrum Cantharidis Sterno.

8 P. M. No return of fit, no dejection: he was nearly in the same state, but more restless, and very frequently moved his right arm with a kind of involuntary or convulsive jactitation, generally at the same time moving his head and coughing. We found it very difficult to make him raise his left hand, yet we saw it move sufficiently to be convinced that it was not paralysed; and he could move both his legs. He lay in a lethargic way, disinclined to move, but was easily roused for a moment; at which times he opened his eyes at our request, put out his tongue, told us he had some pain in the head; and recognised his daughter and other persons, whom he called by name: pulse 94: bowels not opened. He complained now, as during the whole day, of tenderness about the legs and other parts superficially; he was restless, and sometimes wished to get up.

Habeat Pulv. ex Hydrarg. Submur. gr. v. et Pulv. Jalap. gr. xij statim et Repetatur post horas quatuor. Applicentur Cucurb. cruent. Nuchæ si opus fuerit.

August 24th. 8 o'clock. Bowels open, but imperfectly. Passed a tolerably quiet night, but about four o'clock, when the medicine began to act, he became restless, and then went into a fit with foaming at the mouth, and much convulsive action and total unconsciousness, and his mouth was rather drawn: he was cupped to eight ounces, and sensibility returned. At eight o'clock, when I saw him, his condition was scarcely altered from that in which he was yesterday morning; he was perhaps rather more lethargic, and a little more stertorous in his breathing, yet when roused opened his eyes and knew his daughter, though he seemed unable to distinguish between his sons: the restlessness of the right arm continued, but is less, and his cough was less oppressive: pulse 100; action of temporal artery strong: sensation very acute; for as the blister was removed he complained most seriously of the pain, and became so much agitated that I feared he might have a renewal of the fit. Tongue dry, put out feebly but straight; he swallowed drink tolerably well, without giving any evidence of paralysis.

The blister was dressed, and eight leeches were ordered to the temples, and the powders with calomel and jalap to be repeated. If any serious return should take place he was to lose eight ounces of blood from the temporal artery.

Half-past 2 P. M. He was considered by his attendants much better, and he had certainly shown more signs of intelligence, actually speaking on some point of business of his own accord to his son; there was, however, little obvious change in his state, except that the pulse was reduced to 80, but then it intermitted at every third or fourth beat: bowels again opened.

9 P. M. The pulse had risen to 96; he was very lethargic, though he answered when spoken to: bowels open, loose and watery: it is remarkable now, as all along, how acute the sensibility of every part of the body.

25th. As he was becoming more restless towards the morning ten leeches were applied to his temples, and this appeared to give some relief; though still perfectly lethargic when left to himself, he is easily roused: pulse 88: skin cool: three stools of a watery character during the night.

8 P. M. He has been more sensible during the day, and when roused speaks in a natural and rather joking way: no paralysis of any part can be discovered. He still speaks of the irritation in his bowels, which have acted several times; there is some pain on pressure: pulse 84, slightly intermittent: his breathing more natural.

26th. To-day he was quite inclined to joke, making several jocular observations: bowels rather tender on pressure.

27th. A rather restless night with broken sleep; bowels not open till three o'clock this morning: pulse 78, firm: he is inclined to talk and laugh with unnatural and hysterical excitement; he complains a little of his bowels, which have been two or three times open.

Applicentur Hirudines viij temporibus.

R Extracti Hyoscyami gr. ij.

Extract. Col. Comp. gr. ij fiant pilulæ sexta quaque hora sumendæ.

28th. He has been unsteady in mind, but has passed a good night, without the slightest symptom of a return of the fit: pulse 80: skin cool; sleep quite natural; bowels act well.

29th. A tranquil night; two good stools by some castor-oil: he is perfectly sensible and composed, rather low than elevated: pulse 80; a good deal troubled with hiccup. He is altogether, however, so well, that I have taken my leave of him.

He went on regularly improving; but as he rose from bed and endeavoured gradually to return to his occupations, it was evident that a very slight paralytic affection of the left hand remained, and a slight affection of the sight upon the left side; so that when I saw him in the middle of October, if writing he often unintentionally put the left hand over the wet ink; and when attempting to put his left hand upon any small object, he could not do it with the same accuracy as he could with the right. The sphere of his vision was likewise more confined towards the left side, and he would sometimes run up against objects; it also appeared to me that his mouth was very slightly drawn upwards at the left corner: he complained of occasional shootings of pain towards the back of the head, but in all other respects he was perfectly well and able to walk several miles.

He afterwards experienced another attack, when similar means were used with the same good effect ; but it was several months before he got rid of the state of despondency and the partial imbecility of mind into which he fell.

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Cases of this kind are by no means uncommon in practice ; and two or three other examples will be found hereafter, arranged amongst the cases of epilepsy, in this volume. The most difficult point to be decided, generally, is the extent to which depletion should be carried. The various circumstances of the individual, but more particularly his habit of body, will afford the most certain guide ; and in most cases, in proportion as the epileptic character prevails in the attack, will the propriety of large depletion become the more questionable. That very urgent vascular congestion exists during paroxysms of this mixed character, there is scarcely room to doubt ; but in general, direct depletion is to be considered only a temporary means of relief, calculated to remove the present danger from fatal over-distention of vessels and from rupture ; but if frequently or largely repeated will often increase the irritability and the tendency to relapse. When the present danger has been removed, establishing a regular action in the large intestines, and the employment of a tonic regimen and diet are most likely to prevent the repetition of the attacks.

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The tendency of narcotic poisons to produce a state of congestion in the brain, will be illustrated by the appearances discovered after death in those who have died from taking opium.

### CASE LXXXVIII.

#### *Poison by Opium. Great Vascular Congestion in the Brain.*

— WILLIAMS, a young woman, was brought to Guy's Hospital January 21st, 1825, in a state of profound coma, from the effects of opium, taken about two hours before her admission, with a view to self-destruction. The quantity she had swallowed was not exactly known. The stomach-pump was freely used both to wash out the stomach and to administer stimulants ; but sensibility never returned, nor did she ever so far recover as to be able to swallow, and she died about fifteen hours after admission.

## SECTIO CADAVERIS.

Vessels of the head unusually turgid throughout, and on the surface of the anterior part of the left hemisphere of the cerebrum an ecchymosis was observed of a very light colour, about the size of a crown-piece,—such as a very few drops of effused blood might have produced. The bloody points were very numerous in the cut surface of the brain: there was no serum collected in the ventricles. The stomach was quite healthy, except two or three spots of ecchymosis, which were ascribed to the tube of the stomach-pump; there was on the whole less vascularity than usual. In the large intestines were some appearances of inflammatory action. A small ovarian tumor about the size of an orange was found in the pelvis.

The loaded state of the brain illustrated by this dissection, will sufficiently account for the good effect of cold affusion on the head, where excessive doses of opium are acting injuriously, as was pointed out some years ago by Mr. Wray, and of which the following cases,—which I shall give in the words of Mr. Walne, of Bloomsbury-square, in whose practice they occurred, and who has kindly communicated them to me,—form a happy and successful confirmation.

## CASE LXXXIX.

*Symptoms of Cerebral Congestion from taking Laudanum, treated by Cold Affusion.*

“A GIRL had taken an ounce and a half of laudanum upon an empty stomach. About twenty minutes after she had done so, I saw her. Mr. Wray and Mr. Church, who had also been sent for, came in shortly after, and very kindly remained to render me their assistance. The girl was in a state of insensibility; the tube of the stomach-pump was introduced immediately, and an attempt was made to use the syringe:—only a small quantity of fluid was brought up, and we could not say that it smelt of opium. Water was thrown into the stomach and withdrawn repeatedly; still there was no distinct smell of opium. She had been seen to swallow the quantity of laudanum above stated; the druggist who had sold it was present, and the symptoms were unequivocal. The best explanation appeared to be, that the stomach being empty, the laudanum had passed to the duodenum immediately upon its being swallowed. It was necessary to have recourse to other means; and with little prospect of saving the girl's life, I proposed the affusion, of which Mr. Wray had had such happy experience,

and which I had myself seen effectual in two slight cases, since the success of that gentleman and Dr. Copland had been published. We raised our patient, and from a pail of cold water kept dashing mugs-full upon her head, sometimes in her face. In a very little time she showed signs of sensibility, drew her breath suddenly on receiving the dash of water, moaned dissatisfaction, and sometimes, when we had continued it for a length of time, made efforts of resistance to the constraint in which she was placed. Whenever we discontinued the affusion for a few minutes together, she relapsed into a state of insensibility. We continued this treatment, with short occasional intervals, for nearly four hours, shaking her also, and exciting her continually by other means, as calling to her and asking questions when she was sufficiently aroused to signify her feelings. In the course of this time we injected into the stomach a quantity of ammonia as strong as it could be well swallowed by a person in a state of sensibility; she retched several times, and brought up portions of this and some mucus; but still we could not distinguish clearly any opiate smell. Her feet being cold, were put into hot water. At the end of about four hours the whole skin became cold; she was less roused by the dashing of the water, the heart's action was feeble, the pupils of the eyes were contracted to the utmost. We had her placed in a dry bed; and friction, with flannel over the limbs and chest, was used; while hot bricks were applied to her feet. The friction roused the heart and restored warmth, but she continued insensible. In about two hours from the time of discontinuing the cold affusion, the jaw fell; the pulse, which was quick, became hardly perceptible; her breathing was beginning to be impeded by mucus in the air passages; and I (who now had no longer the aid of Messrs. Wray and Church) began to think, as we had all along too much reason to think, that there was no hope of saving her, yet was convinced that her life had been prolonged by the affusion. I determined to try the injection of brandy into the rectum. To show the completely powerless state of her muscles at this time, I mention a trifling circumstance which occurred:—the glister-pipe, guarded by a circular shield of more than an inch in diameter, was introduced, and intended to be retained by the slight pressure which an elastic tube previous'y adapted to it could convey, when held by my assistant, who was not conscious of using the slightest effort. The shield passed the sphincter, and I was obliged to introduce my finger into the vagina and press it back whilst I withdrew it from the rectum with the other hand. Four ounces of brandy, neat, were thrown into the rectum, and quickly and forcibly rejected. It however raised the pulse, and the jaw recovered its natural situation almost immediately after. In about half an hour the same quantity of brandy, with three quarters of a pint of gruel, was thrown into the rectum and retained. She seemed revived by this, slept profoundly, but had a better pulse, and breathed freely. It is not necessary here to detail what further was done in the case. The patient perfectly recovered. What I desire now to call attention to is, that the young woman had swallowed an ounce



and a half of tincture of opium ; that no portion of this could be detected in what was removed from the stomach by the machine, nor in what she vomited, when rendered by the affusion sufficiently sensible to have vomiting excited; that for several hours she could be roused to sensibility most effectually by the affusion of cold water ; and that its use appeared to preserve her from a state of torpor and insensibility which must soon have terminated in her destruction. The effects of opium are temporary, and to gain time when it cannot be removed from the system is what is chiefly necessary. It is probable that after eight hours have elapsed without death having been occasioned by the taking of opium, it would not be fatal, or very rarely so. In this instance I am convinced the patient would have died in an hour or two but for the affusion, and four hours of time at least were gained by that measure; and though the ammonia injected into the stomach might materially counteract the influence of opium, both by stimulation so as to resist the tendency to torpor, and, if it passed on to the intestines, chemically by destroying the properties of the opium, yet I believe that much less is to be ascribed to its influence than to that of the affusion.

“The torpor of this young woman before the use of the water was so complete, that he seemed quite unconscious of any inconvenience from the passing of the tube into the stomach; yet after half an hour, at each dash of the water upon her head she moaned, and sometimes uttered words expressive of annoyance at being disturbed. When for a few minutes the affusion was not used, she sunk into the same state of torpor, from which she was again roused by a few fresh dashes. By the continuance of this usage she became quite drenched; and then we put her feet into hot water, to keep them from partaking of the general chill. If it could be contrived to apply the cold to the head only, it would be better; but it must be by dashing, and the head and trunk should be kept raised for obvious reasons;—the application of a wetted napkin to the forehead, or to the head generally, seems to have very inconsiderable effect.”

#### CASE XC.

*Symptoms of Cerebral Congestion from taking Laudanum successfully treated by Cold Affusion.*

“SHORTLY after the above case occurred, I was called to another, in which a man had swallowed a moderate quantity of laudanum, supposed to be something more than two drachms. He had also been drinking a good deal of spirits and porter. He was strongly convulsed when I visited him, and in the intervals of the fits of convulsions seemed insensible, at all events made no sign of understanding what was said to him. I poured a stream of water from a height over his head, interrupting it occasionally; in a few minutes he was sensible, spoke, answered several inquiries, and swallowed an emetic in preference to having the stomach-pump used, and the emetic



acted. He was taken to an hospital, however, where the pump was employed much against his inclination,—but very beneficially for him, for it brought up a load of filth which the emetic had left in the stomach.”

### CASE XCI.

*Symptoms of Cerebral Congestion from taking Laudanum successfully treated by Cold Affusion.*

“A STRONG healthy young gentleman living in my neighbourhood, swallowed late at night a quantity of tincture of opium, believed to exceed an ounce. He was not sick after it, but went quietly to bed; and but for some ambiguous expressions which he dropped and which excited the suspicion of one of the family, would no doubt have soon been in his last sleep. I was called to him, and found him in a state of great torpor, alternating with strong convulsions. He had taken the laudanum more than a quarter of an hour, and what he had taken was easily ascertained by a few drops of an excellent tincture which remained at the bottom of an ounce-and-a-half phial. I used the stomach-pump without delay, and withdrew a great quantity of matters from the stomach; the odour of these was very strong and disagreeable, so that the opium could not be perfectly distinguished by the nose. After the withdrawal of as much of the contents of the stomach as the machine would remove, he continued very torpid: I injected an emetic, but it did not act. I now dashed cold water over his head: in a short time he was somewhat roused by it. At each successive dash some fresh sign of returning sensibility was given. In a little time he complained of being sick, then relapsed towards his former torpid state, then was roused again by the water; vomited freely what I had thrown into his stomach; wished to sleep, but was kept awake by shaking, and more effectually so by fresh dashes of the water; became sensible enough to know and speak to people, and when relapsing was at any time quickly roused again by the affusion. This was continued for between two and three hours: he was then rubbed dry, and the friction continued till the whole skin was warm. After a while perspiration came on. He continued indisposed with head-ache for two or three days, but recovered perfectly.—It is not my object to relate any part of these cases but what relates to the affusion. In this last-mentioned instance the effect was very marked and satisfactory. There was much less occasion for the remedy than in the former case, for probably a great portion of the laudanum was withdrawn from the stomach, but the narcotic effects continued sufficiently to call for some powerful auxiliary to the stomach-pump; and the affusion answered our necessities most effectually.

“This gentleman being naturally remarkably robust, seemed a fit subject for the loss of blood when his brain was oppressed. I took about from six to eight ounces of blood from his arm, when he was warm in bed, with a full slow pulse, and still very

heavy. It produced great faintness, so that the operation was speedily stopped; and I am not aware of any benefit to him from this loss of blood. His blood was perfectly healthy: his pupils were dilated.—In the case of the girl, the pupils were extremely contracted from the very first. The day after her taking the opium she had considerable febrile excitement, and twice was bled, with evident relief to her head, which ached, and with diminution of the fever. Her blood was much buffed. She had, previously to taking the laudanum been suffering from an inflammation in her chest. The young man had been in perfect health.”

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There is little doubt that the condition of the cerebral circulation is often much the same after intoxication from ardent spirits as it is from an over-dose of opium; but in the former case the duration of more active circulation is generally much longer, and sometimes approaches to inflammation. The efficacy also of cold applied to the forehead and temples, or to the whole head after intoxication is well known.

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The following Cases will serve to illustrate some of the circumstances connected with obstructed circulation through the lungs, on which cerebral congestion frequently depends.

## CASE XCII.

### *Bronchitis with great Cerebral Congestion.*

I WAS requested to see a gentleman of large bulky frame, past 70 years of age, who for one or two winters had been subject to chronic bronchitis, and was now labouring under a great aggravation of the disease: he was in the drawing-room walking about, and dressed as in health: he coughed frequently, knew me when I entered, answered the first questions I put to him respecting his health coherently, but at once seemed to fall into a state of musing and forgetfulness, talking wildly upon subjects to which nothing seemed to lead: his attention was, however, immediately recalled, and as quickly did he relapse into the state of incoherence. His pulse was large and full, nearly 80; his tongue was dry, brownish towards the centre, white on the sides: he coughed frequently, which gave him great pain in the forehead, and he had an abundant expectoration.

Calomel, efficient purging, almond mixture and ipecacuanha, with blisters to the chest, restored him completely in about a fortnight.

## CASE XCIII.

*Bronchitis, with Cerebral Congestion.*

IN the winter of 1820, I visited Mr. Wright; he was sitting up, dressed, in his drawing-room: his countenance was dusky, his lips and tongue purple. He was unable to lie down; answered my questions for a few moments rationally, then went off into incoherent observations, then dozed as he spoke. His breathing was very difficult, and he complained much of the weight at his chest; his pulse large.

I ordered eight ounces of blood to be taken by cupping from the pit of his stomach, and gave him expectorant medicines.

He grew more and more incoherent during the night, and died early in the morning.

## CASE XCIV.

*Bronchitis with Cerebral Congestion.*

JOHN RUGGLES, aged 46, was admitted into Guy's Hospital, Feb. 17, 1830, labouring under dyspnoea with cough, expectorating much frothy mucus. He was obliged to have his head raised in bed; his extremities were cold and œdematous; pulse very feeble and irregular; bowels relaxed; the urine dingy and turbid. In spite of the administration of stimulants, he grew more and more oppressed and feeble; his respiration became noisy, he was unable to expectorate, and gradually sunk, quietly expiring upon the 19th.

## SECTIO CADAVERIS.

In the head the only remarkable circumstance was the general turgescence of the vessels, and a very marked degree of mottling throughout the whole medullary substance, which became still more marked when the slice of brain had been exposed to the air for a few hours, so that the surface had become dry. It was evident that this mottled appearance depended chiefly on a multiplicity of vessels, the cut extremities of which came to the surface. (Plate XIX. Fig. 5.)

The lungs adhered by some old adhesions to the ribs, and some partial spots of hepatization were observed; the mucous membrane lining the bronchial tubes was red, thick and granulated; and some pus was squeezed from the bronchi. The heart was large; the coronary vessels full of blood: both sides of the heart were filled with coagulated blood. The right ven-

tricle was thick, and the auricle greatly distended, and there was ecchymosis in its substance. No disease of the valves. The liver was tolerably healthy, but loaded with blood; the intestines were also congested; the kidneys slightly granulated.

In this case the congestion arising from the difficult transmission of blood through the heart and lungs was manifested in every important organ of the body; and the mottled appearance of the brain was so well marked, that I have selected it from many, as an example of that morbid phenomenon. The cerebral symptoms in this case were less marked than in others I have seen, and were chiefly confined to the general oppression of the system.

### CASE XCV.

#### *Symptoms of Cerebral Congestion from Emphysema of the Lungs.*

— COOPER, aged 35, was from his childhood the subject of dyspnoea, which for the last three years has been so great that he has been able to undertake no laborious work, and has found great difficulty in walking a mile or two, stopping very frequently, and moving slowly. This difficulty of breathing has always been much increased in winter, when he has had frequent attacks of bronchial irritation and inflammation. Since a week before Christmas he has been confined to the house; has been for some time quite unable to lie down; and for the last six weeks, dropsical effusion has taken place both into the abdomen and into the cellular membrane of the extremities and of the body. He has been drowsy of late, lying in a kind of doze, without sound sleep, for many hours together; and about twenty-four hours before death his countenance assumed a purple appearance.

### SECTIO CADAVERIS.

The head was not opened. The lungs were in a state of emphysema so general, that they continued to fill the cavities of the chest when the sternum and cartilages were removed, and large vesicles projected in different parts filled with air. (Plate VIII. Fig. 3.) The posterior part of the right lung was adherent, and was gorged with blood, breaking down as an attempt was made to remove it. The heart was somewhat enlarged, but chiefly the right ventricle, and every part was gorged with blood, particularly the right auricle, much of it of the consistence of black currant jelly, some in the form of semi-transparent fibrinous coagulum. The valves

quite healthy. The abdomen contained about four quarts of transparent fluid. The omentum had formed one long cordlike adhesion to the rectum, running the whole length of the abdomen. The intestines tore very easily. The liver was irregularly gorged with blood, giving something of the nutmeg appearance. The kidneys rather hard, apparently from the contraction of their coats, otherwise healthy.

#### CASE XCVI.

##### *Symptoms of Cerebral Congestion from general Emphysema of the Lungs.*

R. L., a man of about 65 years of age, was admitted into Guy's Hospital in February 1828, labouring under many of the symptoms of bronchitis, with livid countenance and feeble circulation. The stethoscope, which was carefully used, detected some mucous matter in the large tubes, but the respiration of the lung generally was very inaudible; percussion afforded an unusually clear and loud sound. His dyspnoea gradually increased; he complained of much pain in the head, and became drowsy; his countenance at the same time growing purple.—On the 21st of February he died.

#### SECTIO CADAVERIS.

Most remarkable rigidity of the muscles; the neck, legs and arms rigidly extended; a few livid spots on the ankles and knees, and the ears purple.

On removing the sternum the lungs on both sides filled the whole cavity, and instead of receding rather projected beyond the parietes; the colour of the natural gray. On removing the lungs they were both found filled with air, which did not easily pass out; the edges were crisp and distended, and somewhat rounded. Some of the lobules projected above the surface, and the air cells were seen like frogs' lungs over every part: from place to place some of the air cells were distended into blisters of the size of a small shot. Neither infiltration nor subsidence had taken place in the lower lobes, which were distended with air to the very edges, but the parts nearer the root of the lungs contained a little bloody subsidence, and a good deal of serous fluid. A slight puckering at the apex of each lung. The bronchial membrane was of a deep red colour, thickened and spongy, and a good deal of viscid mucus was spread upon it. The heart was loaded with blood of the consistence of currant jelly, with little or no separation of fibrin: the valves perfectly healthy. The aorta was also

very healthy; neither that nor the heart had the internal lining at all stained. The whole of the abdominal viscera showed strong marks of congestion. Liver of natural size and form; but the acini were distinctly seen throughout of a pale yellowish colour, with a slight point-like depression in the centre; the intervening parts red. Spleen with slight thickening of its coat. Pancreas healthy. The stomach and intestines congested. The large veins marked in the structure of the stomach by their purple appearance: the veins of the mesentery distended. On laying open the whole intestines the mucous coat throughout was red with congestion, and loaded with mucus—particularly in the jejunum, where the valvulae conniventes were obviously thickened and turgid, and the quantity of thick creamy mucus was very great. The internal coat of the stomach red and soft, very easily scraped from the surface. The tunic of the kidneys was opaque and thickened, adhering firmly, and when taken off, the kidney appeared with a slightly granulated surface; the colour and size remarkably natural, but the texture rather firm.

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This case possesses peculiar interest, as having had its history and diagnostic symptoms well marked,—the obviously increasing impossibility of breathing, the livid countenance, the exhaustion and languid circulation; while the cough, expectoration, and sound of mucus in the air tubes, were not to such an extent as to account for the apparent obstruction, led to a conclusion of the high probability that an unnatural accumulation of air had taken place in the cells. The clear hollow sound yielded by percussion greatly strengthened this belief; and the faint murmur of respiration, in conjunction with this clear sound, rendered the evidence almost conclusive. This is one of those cases where the assistance derived from percussion and the application of the ear to the chest, either by the stethoscope or otherwise, is very great: had the structure of the lungs been rendered solid by inflammation or cellular effusion, though the respiration might have been nearly or quite inaudible, yet the sound produced by gently striking the chest would have been dull; and nearly the same would have occurred had the lung been compressed by effusion. But a simple inspection of the lung sufficiently explained why the chest which contained such a lung should be resonant; and why, seeing that the lung had been unable to expel the air freely, the natural sound emitted by the egress and ingress of air should have been but faintly audible. The cerebral affection was



so completely secondary, that the wishes of the friends not to carry the examination further was readily complied with; but there is little doubt that the state of the vessels would have given proof after death of their loaded condition towards the conclusion of life. It is well worthy of remark in this and similar cases, how great an influence the state of congestion induced by retarded circulation, exerts on the appearance of various viscera of the body, particularly the liver, the stomach, and intestines: the contrast thus presented between different portions of the liver would, to an unexperienced eye, lead to a belief that much serious organic mischief was taking place in that organ; and with regard to the mucous membrane of the stomach and the intestines, the colour thus presented under such circumstances closely imitates the effects produced by irritating poisons.

### CASE XCVII.

#### *Symptoms of Cerebral Congestion from Emphysema of the Lungs.*

ROBERT MAINWARING, aged 14, was admitted into the Clinical Ward, January 4th, 1826, labouring under great dyspnoea. He complained of constant pain in the region of the heart, increased by pressure at the epigastrium, by lying on the left side, by coughing, and by taking much food or drink; usually worse in the middle of the day, and easier towards night; the chest deformed, prominent at the cardiac region and flattened at the sides. There is much palpitation of the heart. Examined by the stethoscope, the sound of the heart loud, but its impulse weak; the breathing indistinct, with mucous rattle; yet on percussion the chest sounds well: respiration 30, and tolerably full, but laborious and checked by the pain. He lies on the right side, with the head much raised; some cough, with thin frothy expectoration; occasional dull headache and pain between his shoulders, as also over the abdomen, which is hard. Pulse 116, small and weak; skin dry; feet cold and of a blueish colour; face swollen and livid; countenance and voice expressive of anxiety and distress. The tongue has a thick yellow fur with red edges; much thirst and dryness of fauces; craving appetite; frequent distress from flatulence. Bowels not confined; urine scanty, and at times high-coloured, not the least coagulable by heat.

It appears that his complaints first began after the hooping-cough, which he had when two years old, and that they have been growing much worse during the last four or five years, being aggravated in winter and relieved in summer: it is during this period that the projection of the chest has taken place, attended for the last half of the time with palpitation and pain at the heart. The present attack is of seven weeks standing, and was at first accompanied with much cough and expectoration, which have latterly diminished.



The symptoms continued with little change, but the expectoration was occasionally tinged with blood, and some oozing of blood took place from the nostrils; the legs became œdematous, and the lips very livid. About the 28th of January he became very drowsy, with his eyes prominent and half-open; excoriation began to take place, where much pressure was made; and about the 5th of February he was occasionally delirious.

Feb. 6th. Dozed during the night, with much incoherence of mind and talking to himself. Three thin, slimy, and very dark dejections: urine scanty, and passed in bed. The excoriated parts are darker and deeper, but do not seem very painful. Cough occasionally troublesome, especially when lying on the left side. Pulse 124, tolerably full and strong: respiration 32, short but not laborious; conjunctiva injected and filmy; he lies quietly without speaking or moaning, and scarcely sensible, but he takes food freely.

Feb. 8th. Slept ill, with much delirium; several thin dark motions considerably tinged with blood, which, together with his urine, are frequently passed in bed.

He died in the course of the next day.

#### SECTIO CADAVERIS.

The head was not examined. There were slight adhesions of the pleura, principally on the right side, where a pint of serum was also found, but very little in the left cavity. The lungs pale and crepitant and distended, having little disposition to collapse. The air cells were greatly dilated, particularly on the right side, where many were as large as hemp-seeds, the whole lung approaching in appearance to the lungs of some reptiles.

At the summit of the upper lobe a well marked depression, with considerable puckering of the surrounding surface. In the substance of both lungs was very little black pulmonary matter, and no tubercular deposit: in the anterior and inferior part of the right, some dense rounded defined ecchymosed portions forming pulmonic apoplexy. The ramifications of the bronchi on this side were very remarkably dilated; in some instances even increasing in diameter as they were traced towards their extremities, but no complete *cul de sac* discovered. The coats of these dilated tubes were very thin, and readily separated from the surrounding substance of the lung. Bronchial membrane generally redder than usual. Very little fluid in the pericardium, which was quite healthy. The heart did not exceed the healthy size, but there was perhaps less than the usual difference between the thickness of the two sides; the valves all healthy; the foramen ovale must at one time have been of a large size, it was firmly closed.

Little blood or coagulum in the cavities of the heart; but in the right auricle near to the ventricular opening was a coagulum about the size and figure of a small cherry adherent to the lining membrane, which did not appear to be diseased. This clot was internally grumous or nearly fluid, of a light reddish brown colour. Some smaller bodies of similar character were found attached to different parts of the interior of the heart, formed probably in the early part of protracted death.

Some serous fluid was collected in the peritoneum, but it did not appear to be the result of inflammation. Stomach much contracted, especially towards the pylorus; its mucous membrane had a slight florid blush; that of the intestines about the termination of the ileum and the commencement of the large intestines, of a deep dull red colour and readily torn from the subjacent coat. The liver large and its structure healthy, but gorged with blood which flowed copiously at every incision. Pancreas large, firm, and rounder than natural. Spleen healthy. Kidneys equally so, the right much smaller than the left. Bladder had not voided its contents.

In this dissection, the effects of obstructed circulation produced by difficult transmission through the lungs are very extensively illustrated;—the liver as well as the intestines loaded with blood leading to the discharge of blood by the stools, and the blood slowly coagulating in the heart; while in the lungs themselves, where blood was admitted, it accumulated in the form of pulmonic apoplexy. From the symptoms there can be no doubt that the brain partook greatly of the same condition.

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The two following cases of Hooping-cough, which serve well to illustrate the degree to which congestion affects the brain under circumstances of pulmonary obstruction, have been communicated to me by Mr. Walne.

#### CASE XCVIII.

*Great Congestion in the Brain from obstruction in the lungs in a case of Hooping-cough.*

“ — TRIPHOOK, a child who had been ill of hooping-cough for some weeks, (during part of which time she had been feverish, and had had some difficulty in breathing,) after being apparently much better and able to play about, was shortly after a very violent fit of the cough seized with convulsions. The physician of a dispensary attended the child for the convulsions, and had done so for the cough. In the evening of the

day on which the convulsive attack was experienced, as he was not in the way, I was sent for to see the child, and found it as if in a state of apoplexy—foaming at the mouth, its lips purple, the pupils dilated to the utmost degree, and the retina so little excitable that no visible change was effected in their condition by the strongest light. Convulsions strong and incessant, chiefly of one side of the body—pulse imperceptible. It had been convulsed for some hours. The child seemed dying, and the probability is, that in an hour or two, at most, it would have died but for what was done. I put the head over the side of the cradle, and dashed cold water over the face forcibly, and with very short intervals, for full half an hour. It was nearly twenty minutes before any effect appeared to be produced, unless it were a very slight diminution in the strength of the convulsions, and excepting also that the pulse became perceptible. Continuing the aspersion and occasionally pouring a small stream of the cold water upon the upper part of the forehead, allowing it to run down over the crown and back part of the head, for three quarters of an hour or perhaps more, the convulsions ceased, the child became sensible, coughed strongly, and cleared its air passages of a quantity of mucus. The pulse was still very feeble, and I gave therefore about a tea-spoonful of brandy in three or four of gruel, which the child swallowed gradually, and by which it was evidently still further revived. The head was now kept constantly wet with cold water; some leeches were applied, and medicines given. Next day the child had some symptoms of inflammation of the brain, very frequent and pretty strong pulse, sensibility to light more than natural, but no sickness. The cough was very strong, aggravating these symptoms. In two days I think, the child died.”

#### SECTIO CADAVERIS.

“Small portions of the lungs were hepatized at the edges of the lobes, there was a muco-purulent fluid in the air cells and ramifications of the bronchi, and some redness of their lining membrane. In the head it was observed that the sinuses were full of blood and the veins greatly distended, producing so generally dark an appearance of the surface of the brain that it was at first doubtful if considerable effusion of blood had not taken place. This however was not the case. The substance of the brain throughout was of the pink tinge which is thought most characteristic of inflammation of that part.

“The convulsions of this child pretty evidently depended upon congestion in the blood-vessels of the brain, and the effect of the cold water in relieving such extreme symptoms was very remarkable. It is true that the child’s life was only prolonged two days,—that it was so much prolonged I have no doubt.”

## CASE XCIX.

*Effusion of Blood on the Surface of the Brain in Hooping-cough.*

"A CHILD of one of my medical friends died of the hooping-cough, and I was requested to examine the body. It had been a remarkably healthy stout girl, and the illness long. Great portions of the lungs exhibited the gradations of appearances, the common result of continued inflammation, hepatization and infiltration, and this was thought enough to account for the child's death. The head, however, was examined; and if it had been the head of a person who had died of pure apoplexy, it could not have more distinctly exhibited the characteristics of that disease. The vessels were gorged, and a quantity of blood was actually effused, forming a layer of coagulum of the extent of half-a-crown upon the surface of one of the hemispheres."

In confirmation of the facts here stated by Mr. Walne, and as serving to show that the inflammatory affection of the lungs is not the immediate cause of death in these cases, I may mention that I had some time ago an opportunity of examining with Mr. Welbank the chests of two children who died of hooping-cough. In both the breathing had gradually become more and more laborious, the pulse frequent and weak, the countenance and lips livid, and the whole body œdematous; great and unconquerable drowsiness then came on, and in one case convulsions before death. We had an opportunity of examining the chest only: there was not a vestige of what we could ascribe to pneumonic inflammation, but the greater part of the lung was in a state of decided emphysema, while many of the lobules about the edges of the lungs were flattened as if they had not admitted of the ingress of air for a considerable time. The bronchial tubes were a good deal loaded with viscid mucus.

## CASE C.

*Pressure from Congestion in the Vessels of the Brain without Effusion, in a Case of extensive Pulmonary Disease.*

WILLIAM HOLT, between 50 and 60 years of age, was admitted December 27th into Guy's Hospital, having fallen into a vessel of boiling glue and scalded himself in a very severe manner, more particularly about the chest, on the right side of which a large and unmanageable sore was formed. He became after a time the subject of pulmonary symptoms, but lay always on his back, on account of the sore; and gradually grew

more and more feeble, till he sunk on the 20th of January, being perfectly sensible to the last, but becoming very drowsy and slightly lethargic a day or two before his death. He never suffered any fit, nor was his breathing stertorous.

#### SECTIO CADAVERIS.

The large veins of the pia mater were much distended. On cutting slices from the brain a purple marbled appearance, which is by no means unfrequent where much congestion has preceded death, was very strongly marked (Plate XIX. Fig. 6.); and there were many bloody points formed by divided vessels, which did not however pour out blood forming large blots, but rather conveyed the idea that the blood within them was not very fluid. This appearance of vessels was remarkably strong near the centre of each hemisphere, in the medullary matter just outside the corpora striata; and when the brain was sliced to a level with the roof of the ventricles, many of the vessels were drawn out as the scalpel passed through them, like little threads of a dark red colour. This appearance was precisely in that part where the apoplectic clot is most usually found, and is the place where the largest vessels which enter the substance of the brain are situated.

The pleura was inflamed on the right side, corresponding to the extensive scald. No effusion had taken place into the cavity. Both the lungs were in a state of hepatization and of œdema to a very great extent, so that they remained quite uncollapsed when taken from the body. The right lung more particularly was in a state of advanced disease, with several rather superficial gangrenous abscesses, which emitted a dreadful smell.

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In this case the cerebral congestion depended on the disease within the lungs, which was so extensive as almost to prevent the passage of blood through them; and the morbid changes within the head are interesting, as presenting some of the peculiar appearances derived from congested vessels where no actual rupture has occurred.

#### CASE CI.

*Excessive Vascular Congestion of the Brain in Fever, with Emphysema of the Lungs.*

J— C—, a man advanced in years, was admitted into Guy's Hospital, August 26, 1829. Very little account could be obtained respecting him; for the moment he was received he was deserted by his friends, who never came again. We only learnt that he

had been ill a fortnight, and that his wife lay in the same state: he was so ill that he was immediately sent to his bed, making some slight effort to assist himself while going up stairs. When I saw him about half an hour after, he lay on his left side, his knees drawn towards his body, breathing with an effort, and scarcely sensible of external objects; still, however, apparently so far sensible as to attempt to put out his tongue when repeatedly desired, and making a kind of muttering sound when spoken to, though unable to render himself intelligible. His face was rather livid, his pulse very weak, his eyes staring open. He was not paralytic, for he had drawn his limbs up; and he had some sensibility, as was evident from his drawing his limbs when slightly pinched. I conceived that he was in the last stage of fever with great congestion in the head, and in this view of his case I was strengthened by hearing that his wife lay in nearly the same state. Warmth and stimulants, chiefly external, afforded almost the only chance of restoring the circulation.

27th. He has remained exactly in the same state and posture, has never spoken a word; but his limbs are rather more contracted, and his legs are covered with a cold damp perspiration, his eyes still more forcibly strained, his respiration more laborious, his countenance more livid; and he passes his urine and fæces entirely in bed. He died in the evening.

On investigating the history of this poor man afterwards, it appeared that he and his wife left Horncastle, where they resided and where he carried on the trade of a coach smith, and set off with an intention of walking to London, taking Northampton in their way; that they were about a week on the road to Northampton, and there stayed with their daughter for a week, whence in her company they set forward to London, and arrived in about one week more. They seldom walked above twelve or twenty miles in the day, but on one occasion about twenty-five miles; and as they rested comfortably at night, it was hoped they would not suffer from the journey. However, on their arrival in London in the middle of the night they seemed greatly exhausted, and from that time their last and fatal illness was manifest. They arrived on Friday the 21st of August. The man was evidently the most affected, and when seen by Mr. Palmer was considered to be labouring under fever; he gradually became worse and worse, and was scarcely able to express any thing for a day or two before he was brought to Guy's.

#### SECTIO CADAVERIS.

The face was not now remarkably livid. On raising the cranium, the dura mater did not appear unnatural; but when it was removed, the cine-



ritious matter coming into view beneath the arachnoid presented the most singularly marked character of venous congestion. It was almost of the colour of black-lead, the large vessels not very remarkably distended, but the whole of the minute circulation of the cineritious substance so loaded with venous blood as to give one general purple gray colour. (Plate XVII. Fig. 1.) Cutting off the upper slice, all the cineritious substance presented itself of the same colour (Plate XVII. Fig. 2.), but four distinct layers could in many parts be perceived; the outside lighter, but so thin that it might only have been the effect of transmitted light; next, a very dark line, then a light layer, then a narrow dark layer, not so dark as the second, then another light, and a dark one within. These successive lines, though they were shaded into each other, were quite distinct in different parts when the cut was perpendicular, otherwise the dark or the light bore a greater proportion according as the slanting cut displayed the one or the other. The outer dark part occupied about one half of the whole thickness of the cineritious portion, while the other half was composed of two light and two dark layers. Careful examination with the microscope did not explain the cause of the dark colour of the cineritious matter, although the vessels were to be seen with unusual distinctness passing from the pia mater through the cineritious substance. Some few of these vessels went completely through, and could be traced a quarter of an inch into the medullary substance, while others passed just through the cineritious part; but still more seemed to be broken or cut off before passing quite through, perhaps depending on the section. The medullary matter was not mottled, but of a uniform dead gray white colour with a few small venous specks; and on minute examination with a lens the gray colour appeared to be given by innumerable fine gray specks and short hair-like vessels, resembling the appearance produced by scraping the nap of fine cloth upon a sheet of white paper. (Plate XIX. Fig. 1.) The corpora striata were of the same dark colour as the rest of the cineritious substance, and the white fibres showed themselves most beautifully by their contrast. The choroid plexus was absolutely void of blood, and the large vessel which runs along its edge quite empty. At the basis the same most peculiar colour showed itself, and the basilar and other large arteries were full of black blood. No serum beyond the most customary quantity was effused either under the arachnoid or into the ventricles.



The lungs were perfectly healthy, with the exception of emphysema, which was well marked in every part ; so that the lungs scarcely collapsed on admission of air into the cavity, and scarcely seemed to contain any blood. The heart natural, but the vessels ramifying over the commencement of the aorta were large and purple. The liver soft and dark ; the spleen very dark, and so soft as to break down into a semi-solid mass as an attempt was made to draw it out. The intestines, except that they were congested, were natural, as were the kidneys.

## CASE CII.

### *Cerebral Congestion in Fever.*

WITH regard to the woman, the wife of the last patient, whose age was about 66, she remained under the care of Mr. Palmer, having an unconquerable dislike to an hospital. There was sordes about the teeth, a dry brown tongue ; and he considered her disease to be low fever. She remained sensible, though occasionally lethargic, till Saturday the 29th, in the morning of which day she was considered to be even improving, but on that evening became almost comatose, and died in that state at ten o'clock on Sunday night, the 30th.

### SECTIO CADAVERIS.

About sixty-five hours after death, we obtained permission to examine the head : the body was at that time becoming a little discoloured by putrefaction. On raising the cranium there was no evidence of commencing decomposition to be perceived, but the brain was rather soft. The colour of the cineritious substance was peculiarly dark, though less so than in the husband : it was however evident that a similar condition existed in some degree, and the substance of the brain was of a gray colour from the same cause,—a great multiplicity of small dark-coloured points, only to be discovered by the aid of a lens. It must however be borne in mind, that the appearances in this case were rendered equivocal from the possibility of decomposition ; but in the case of the husband no such source of doubt existed, as the examination took place within twelve hours of his decease.

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The foregoing cases of slow and gradually increasing congestion are sufficient to afford examples of this very common morbid condition of the brain. As a consequence of pulmonary obstruction nothing is more frequent, and the conditions of the lungs which seem most apt to produce it are : condensation from the pressure of effused fluid ;—changes in the bronchial membrane from chronic inflammation ;—extensive emphysema of the lungs, whether the consequence of original weakness in the structure of those organs, or from violent exertion, or from chronic thickening of the bronchial tubes ;—and sanguineous congestion generally dependent upon some obstruction to the free passage of blood through the heart ;—and occasionally the changes consequent on Phthisis and Pneumonia. Many of the most distressing symptoms of bronchitis, —the intense headache, the wandering delirium, and the lethargic coma, —are undoubtedly dependent upon the state of the circulation through the head. (See 1st volume of these Reports, p. 27 to p. 34.) It is however not quite evident what part the simple mechanical congestion and what part the chemical condition of the blood takes in this morbid train of symptoms : there can be little doubt that both these causes exert a hurtful influence ; for if any organ of the body is calculated to feel more injuriously than another the imperfect quality as well as the disproportionate quantity of the blood with which it is nourished, it is probably the brain ; and I shall hereafter, when speaking on the subject of Jaundice, take the opportunity of referring to that disease as another instance in which the imperfect state of the blood is found to influence the appearance of the brain most obviously (Plate XVIII.), and, as far as we can judge from the symptoms of mental and bodily depression, to influence the functions of that organ. In the case of jaundice, however, the evidence of pressure and mechanical accumulation is much less distinct, than of functional derangement depending upon the altered condition of the blood.

The appearances of the brain afforded in the milder cases of cerebral congestion which I have detailed, are quite sufficient to show the nature of that gradual injection of minute vessels which is going on in the course of disease. But the last two cases, and more particularly that of the husband, went far beyond anything of the kind I ever saw before, and could only arise under a combination of exhausted power from age, over-exertion, poverty, and febrile action, with a previously diseased condition of the lungs, rendering them unfit for the free circulation of the blood.

Besides the states of actual and fixed disease which are included in the foregoing cases, instances are daily presented to us in practice, of minor degrees of cerebral affection, which may well be ascribed to partial and temporary congestion;—such as momentary vertigo, which often leaves the patient in doubt whether it have actually existed; beating in the head; singing in the ears, under all its various modifications; slight involuntary muscular action evinced by the twitching of the muscles of the face, by the catching motion of the thumb, or the jumping of the leg; and an endless list of pricking, burning and even painful sensations, with partial and sometimes extensive numbness; all of which, though they very frequently pass off without requiring remedies or being followed by more alarming disease, are often the precursors of paralytic affections in which we have every reason to believe that vascular congestion had preceded and accompanied the attack.

Another curious and somewhat extensive field of inquiry connected with this part of our subject, relates to the causes which give rise to that frequent attendant upon disease—headache. That this symptom depends on various causes, and that it is connected with different conditions of the circulation in the brain, is not improbable; but in by far the majority of cases the actual condition of the vessels at the moment of the existence of headache is a state of congestion. Exhaustion from fatigue—exhaustion from the loss of blood—exhaustion from over-excitement by mental exertion or bodily excesses,—all tend to produce a state of debility in the vessels of the brain which favours congestion: and these are the more ordinary circumstances under which headache occurs. The headache which follows apoplectic and epileptic attacks, that which torments the hysteric female, and that which so often attends on the dyspeptic stomach,—all probably depend on cerebral congestion variously modified and combined, according to the causes which give rise to it, or to the peculiar state of the constitution in which it occurs.

## CASES

ILLUSTRATING THE OCCURRENCE OF PRESSURE OF THE BRAIN FROM SEROUS EFFUSION, INDEPENDENT OF INFLAMMATION.

### CASE CIII.

*Effusion under the Arachnoid and into the Ventricles, from Congestion caused by Suspension.*

MRS. HEBNER was executed for murder;—the dissection of the brain took place forty-eight hours after death.

#### SECTIO CADAVERIS.

The skull small, the bone very dense. On raising the calvaria the dura mater was seen covered with drops of fluid blood issuing from the vessels, particularly at the posterior part; the same was observable on the inside of the skull itself, and the skull was mottled with vascularity. There was not the slightest mark of coagulum in the longitudinal sinus, and very little blood; the other sinuses were full of fluid blood without the least coagulum. The arachnoid and pia mater were not remarkably turgid with blood; there was decided, but not very great, serous effusion under the arachnoid, filling the spaces between the convolutions, but not raising the membrane over the convolutions. The medullary substance of the brain of a dusky colour, and very full of bloody points; the blood quite fluid, and forming blots upon the cut surface. The ventricles contained more than the natural serum; the large vein running along the plexus choroides greatly distended with blood, and the veins running over the corpora striata much congested. The base by no means vascular; the arteries empty, and a small patch of ossification at the separation of the basilar artery.

In this case, it is to be inferred, that the serous effusion which was marked, though not extensive, both in the ventricles and under the arachnoid on the surface of the brain, occurred in consequence of simple congestion. That congestion was by no means so great as we frequently find in cases of bronchial affection, where the vessels have been many weeks, months, or years gradually accommodating themselves to the increased quantity of blood they contain.

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THE following cases of suffocation from the fumes of burning coals, which occurred in Guy's Hospital, are illustrative of the effects of cerebral congestion in producing serous effusion and symptoms of pressure. I had an opportunity of watching the symptoms, and seeing the appearances presented after death. The patients were under the immediate care of Mr. Morgan, who has kindly permitted me the use of his notes.

William Garbett, John Jackson, and John Harman, were brought into Guy's Hospital, at half-past nine on Saturday morning, December 16th, in a state of insensibility. The circumstance which gave rise to the occurrence were as follows.—The abovementioned men formed part of the crew of the *Anstree* of Whitby, and were in perfect health on Friday. At nine o'clock in the evening they retired, together with another of the crew named Fairfoot, into the forecastle of the ship for the purpose of going to rest. Before getting into bed, the fire (which was contained in a grate in the centre of the room) was replenished with coals. At eight o'clock on the following morning the usual signal was given by the mate for their appearance upon deck; but no answer being returned, he descended to learn the cause, when the following appearances presented themselves:—Garbett and Fairfoot were lying on the floor, but Jackson and Harman remained in their beds; they were all in a state of stupor and insensibility from which it was impossible to rouse them, and they were brought upon deck without any other signs of life than a difficult and laborious respiration. The air of the forecastle was of a sulphurous and suffocating character; and on investigation it was found that the smoke and fumes arising from the combustion of the coals had been prevented from escaping by the removal of the upper part of the chimney, so that the orifice was several inches below the level of the deck, and consequently the smoke instead of ascending would be driven downward by the wind. The hatchway, which was large enough to admit a full-sized man, had been closed throughout the night: the coals which had been used seemed to be of an inferior quality, containing a large proportion of sulphur. The effects produced upon the persons who respired this impure air, although uniform in some respects, yet differed very widely in severity. This variety however is not at all explicable from any difference in the concomitant circumstances, since the mildest and most severe cases took place under circumstances precisely similar.

## CASE CIV.

*Symptoms of Cerebral Congestion from Suffocation.*

— FAIRFOOT, a healthy young man, was found at eight o'clock in the morning, lying upon the floor on his elbows and knees; when brought upon deck he was breathing with difficulty, and was quite insensible. After having been exposed, however, about two hours to the open air, he began to exhibit signs of consciousness, and at eleven he was able to speak. Excepting the exhibition of a small quantity of brandy, no remedial measures were had recourse to. His recovery was preceded by vomiting. At two o'clock he was able to walk to the Hospital, and seemed to suffer no material inconvenience. He could give no account of the occurrence, and was unconscious of having left his bed.

## CASE CV.

*Cerebral Congestion from Suffocation.*

JOHN HARMAN, a ruddy healthy-looking youth, about eighteen years of age.—At half-past nine o'clock (the time of his admission) he was labouring under the following symptoms. The respiration was rather quick; pulse quick, and he was completely insensible. Ammonia was administered, and heated vinegar rubbed over the body and extremities; in a short time the breathing became easier, and his nose became sensible to the impression of stimuli. In about four hours his face had assumed its natural appearance, and consciousness began slowly to manifest itself. He went on improving, and at two o'clock was able to answer questions correctly, complaining only of pain in the back of his head. About three o'clock he was bled, and recovered with no further inconvenience. He left the Hospital on the following day.

## CASE CVI.

*Serous Effusion under the Arachnoid from Suffocation.*

WILLIAM GARBETT, a robust and muscular man, aged 30, was placed in circumstances very analogous to the former, and was found lying beside Fairfoot on the floor. When brought into the Hospital at half-past nine, he was completely insensible, his breathing obstructed and stertorous, and his extremities cold; his pupils, though not dilated, perfectly insensible to light; and his pulse frequent and weak. Friction with heated vinegar was immediately had recourse to, and some ammonia was administered. At eleven o'clock he inhaled a bladder of oxygen gas: this produced a transient brightening of the countenance, the colour of his face becoming slightly redder. No permanent amendment however was effected; he remained much in the same state,



brandy being at intervals administered, till one o'clock, when his breathing became gradually shorter; and at half-past one he expired.

#### SECTIO CADAVERIS.

The body of a purplish colour, the lips livid. On separating the calvaria from the dura mater, a considerable quantity of blood flowed from the ruptured vessels. The vessels of the pia mater were not unusually turgid, nor did they appear larger than common; some serous effusion had taken place under the tunica arachnoides, particularly on the left side. There was no effusion into either ventricle; the plexuses natural; the veins of the corpora striata were very large and considerably distended; the other parts of the brain appeared perfectly natural. The sinuses were gorged with blood, which flowed freely when they were cut into.

No effusion had taken place into either cavity of the pleura or the pericardium; there was great congestion in the lower and back parts of the lungs and the lining membrane of the bronchi; and a considerable quantity of mucus in the tubes, interspersed with small portions of a substance resembling charcoal. The right side of the heart, particularly the auricle, was loaded with blood. The left auricle and ventricle likewise contained a small quantity. The viscera and the abdomen presented nothing peculiar.

#### CASE CVII.

JOHN JACKSON, aged 14.—When brought into the Hospital at half-past nine, his symptoms were very severe: the extremities were cold, the pulse very frequent and weak, the respiration very difficult and laborious; the pupil of the left side was dilated, and but very slightly affected by the admission of light; that of the right side, however, was natural. He was immediately rubbed with hot vinegar, and some ammonia and brandy administered by means of a tube introduced into the œsophagus. At eleven o'clock he inhaled a bladder of oxygen gas; this was followed for a short time by longer and deeper respirations, and there was a transient amendment in the expression of the countenance, and slight temporary redness in the face. At twelve o'clock the muscles of the left side were observed to be rigid, and often affected by spasmodic twitchings. The right arm was in almost continual motion, and the mouth was occasionally drawn to the left side. The temperature of the left side was perceptibly higher than that of the right. There was an almost incessant motion of the



eyes, produced by the alternate action of the abductor and adductor muscles. The pulse varied from 140 to 160 in the minute, was always small and weak, often fluttering and indistinct. At one o'clock a sinapism was applied to the chest. About an hour from this time no amendment having taken place, the jugular vein was opened; very little blood however could be obtained, and it was therefore thought proper to open a vein in the arm: the blood taken from both amounted to six ounces. The effect of this was to produce for a few minutes an increase in the sensibility of the affected iris, and to render the pulse rather fuller. In a short time after this, ten ounces of blood were drawn from the right temple by cupping. The pulse again rose for a few minutes, and the pupil remained afterwards more sensible to light. No obvious permanent amendment was produced by these measures; his respiration continued to be difficult, and his pulse became again fluttering and indistinct; and when perceptible enough to be counted, was from 150 to 160 in a minute. Brandy and ammonia were administered at intervals, and oxygen gas frequently inhaled. The latter never failed to produce a temporary excitement; during which the eyes were opened, and the respiratory muscles called into increased action. He gradually became worse, his powers evidently decreasing. At seven in the evening his breathing was short and quick, his pulse fluttering and not to be counted, and a cold perspiration bedewed the surface. A stimulating enema was administered, and oxygen again inhaled. He rallied a little about ten o'clock, but soon sunk into his former state; and at four o'clock on the following morning he expired.

#### SECTIO CADAVERIS.

On separating the calvaria from the dura mater, a considerable quantity of blood issued from the torn vessels, showing their distended state. The veins of the pia mater were rather full, and an increased vascularity was observable. There was a very slight effusion of serum under the tunica arachnoides in the fore and upper part of the brain, and about two or three drachms in the base of the cranium; the pia mater and tunica arachnoides very tough. The hemispheres, when sliced, showed very numerous bloody points; the cineritious substance was every where rather darker than usual. There was a small ecchymosis in the cortical substance on the outer side of the anterior hemisphere; it did not extend into the medullary matter, nor was it attended with laceration of the brain, but there was a slight effusion into the substance, as if from the rupture of the small arteries and veins which are so numerous in that part. These small vessels were distinctly seen on peeling off the pia mater and tunica arachnoides, and were found to contain blood; the ventricles were

free from any increased serosity. The corpus callosum was convex at its anterior part. All the veins of the ventricles—that is, those crossing the corpora striata, the hippocampi, and other parts—were unusually large, even for a man, and contained black blood. The plexuses not gorged. The vena magna Galeni was very large, and contained blood; the arteries at the base full, but not gorged with coagulated black blood. The sinuses full of black blood partly coagulated.

The bronchial membrane was of a dark red colour, from an injection of the very minute veins, which formed a beautiful arborescent appearance. The lungs healthy and collapsed, and not more full of blood than usual. The small veins of the pleuræ very distinct, and contained blood. The pericardium contained a drachm or two of serum. The nourishing vessels of the pulmonary artery and aorta, and indeed of the heart itself, were minutely injected with blood. The heart healthy, the right auricle full of black blood, partly coagulated; the right ventricle full, but not gorged, with similar blood; only a small quantity of blood on the left side.

Slight congestion in some of the convolutions of the intestines; the ag-gregate and solitary glands unusually distinct. Mesenteric glands enlarged. Liver healthy, except on its convex surface, where there were irregular patches of a light brown colour under the peritoneum, which extended to the depth of from a quarter to half an inch. The small veins unusually distinct all over the abdomen.

### CASE CVIII.

#### *Cerebral Congestion from Suffocation.*

A CASE very similar to these, but of which I have not the precise notes, was admitted into Guy's some time after, and was in part under my care.—Two boys had gone to sleep on a brick-kiln; one was found dead, and the other was brought in a state of torpor and insensibility to the Hospital. His pulse was exceedingly weak and frequent, his respiration quick, and his extremities cold. Warmth was applied to his feet and his abdomen, and by degrees he was able to swallow, when ammonia and stimulants were freely administered; he gradually recovered in about three days, but three or four days more elapsed before the languor and debility had passed off.

## CASE CIX.

*Effusion under the Arachnoid and into the Ventricles, from Vascular Congestion, in a Case of diseased Heart.*

JOHN BATTIE, aged about 30, was admitted into Guy's Hospital, October 29th, 1828. About fourteen months before, he had first felt what he describes as a weight at the pit of his stomach, since which his breath has become very short, and he has experienced palpitation of the heart on the slightest agitation: his lips and cheeks are purple, and his legs cedematous, which has been the case for about a fortnight. Pulsation of the heart unequal, irregular and very extensive; and a sawing feel is communicated to the hand when placed near the apex: urine scanty.—It was concluded that the heart was enlarged, and that the mitral and semilunar valves were diseased.

The means employed were: Antimonial ointment over the region of the heart, and afterwards a seton; gentle purgatives, diuretics, and sometimes, particularly towards the close of life, ammonia and other stimulants.

He generally lay on his bed in a drowsy state, raised into nearly a sitting posture: the fluid gradually accumulated in his legs, and for the last two days his right leg was covered with superficial sphacelus.—He died on the 27th of November.

## SECTIO CADAVERIS.

Countenance purple. Right leg in a state of sphacelus superficially: one or two large vesicles full of purple ichor on the right thigh. Considerable effusion into the right cavity of the chest: the lung on that side somewhat compressed, so that the lower lobe approached to a rounded or globular form rather than its usual shape. When cut into, it was to a certain degree consolidated, but not hepatized, nor did it show any mark of inflammation. The left lung also rather too solid and tough, not of its healthy spongy consistence, and containing little air except at its edges, which were emphysematous. The heart very large, adhering by close membranous or rather transparent cellular adhesions in every part. Both the ventricles were distended and thickened. The mitral valve ossified to a great extent, the curtains covered with bony vegetation. The semilunar valves of the aorta thickened, probably six times the natural structure, and adhesion had taken place along the edges one to the other, so as to reduce the opening above one-third. The tricuspid valves a little thickened, the semilunar of the pulmonary artery quite healthy. The aorta

small; the pulmonary artery unusually large; a considerable quantity of blood in the cavities of the heart.

Several pints of clear amber-coloured fluid in the abdomen. Liver rather hard; the acini white; the intervening substance gorged with blood, so that the contrast throughout was great. Gall-bladder pretty full of thin bile. Spleen gorged with blood. Pancreas with œdematous effusion between the lobules. Stomach rather vascular, apparently in the act of digestion, filled with some farinaceous food. Intestines healthy, but they contained much watery mucus; the mucous membrane pale throughout. The kidneys healthy; no fixed obstruction to the return of blood in the veins of the lower extremities.

The arachnoid was slightly distended with a general layer of clear fluid; the vessels in every part of the brain were of a dusky purple, and a remarkable ash-gray colour was communicated to the cortical substance, which was very striking on the surface when the arachnoid and pia mater were stripped off; there was rather more fluid in the ventricles than natural.

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Although this case is introduced with a view of showing the effects of obstructed circulation in producing serous effusion on the brain, where it displays itself likewise by congestion in the smaller as well as the larger vessels, and produces in some degree the peculiar dark gray colour which was so strikingly exemplified in Case CI. (Plate XVII.); yet there are other circumstances of interest in this dissection. As the result of long continued obstructed circulation, the lungs were hardened and fleshy, where not compressed by the fluid, and condensed on the right side where the effused fluid had acted upon them;—the condition also of the liver was characteristic of these cases, from the marked injection of the substance intervening between the acini, an appearance which is very frequent where great obstruction has taken place in the heart. The redness of the mucous membrane of the stomach might likewise have depended on the same cause; but as the intestines were free from any such injection, some other cause may have produced it in the stomach.

With regard to the symptoms, they corresponded entirely with the morbid appearances.

## CASE CX.

*Congestion in the Brain with serous Effusion, in a Case of Bronchitis and Phthisis.*

WILLIAM LEE, aged 50, was admitted into Guy's Hospital Oct. 29th, 1828. He said that during the last four years he had suffered three attacks like the present, but never so severe; eight weeks ago the present attack began. He coughs very much, particularly during the night, and has great expectoration: pulse 96, feeble: countenance suffused, dingy and purplish, respiration 40: he frequently loses himself for a few minutes, feeling giddy, and talking incoherently.

Some of his more urgent symptoms were at first relieved, and his breathing was decidedly better for a time; but it was obvious that he lost flesh, and his expectoration became purulent and dark-coloured: diarrhœa came on, which reduced him rapidly. He was never completely coherent for many hours together, and became very lethargic, scarcely giving an intelligible answer when roused, and never latterly an answer to be relied upon; the conjunctiva also became slightly tinged with bile.

## SECTIO CADAVERIS.

General emaciation. Both lungs consolidated, the upper lobes filled with miliary tubercles, in some parts gone into a state of suppuration forming abscesses of the size of filberts, lined with a firm membrane. Heart rather small, with an old adhesion not far from the apex. The liver was spotted throughout with yellow deposits of the size of half a grain of rice, and capable of being pressed out. The bile in the gall-bladder thick, and tenacious to a remarkable degree; other viscera healthy. The vessels of the dura mater remarkably large and numerous. The arachnoid was distended with serum of a clear and watery character; the vessels full of purple blood. The cortical portion looked gray, and the medullary portion also gray, and pervaded by dark vessels; more fluid than natural in the ventricles.

## CASE CXI.

*Effusion of Serum under the Arachnoid.*

A TAILOR, a middle-aged man, was admitted into Guy's Hospital December 1st, 1824. From his wife we collected that they had suffered losses, that he had been a very hard-living man; that for nearly three months, without any distinct attack, he had been gradually losing the use of his limbs, but for a few days had become much worse, so that for that time he had appeared lost and unable to give an account of himself.

When applying for admission, I found him sitting in one of the chairs in the taking-in room, unable to describe his feelings. He answered when roused, but his answers were obviously very unsatisfactory, generally consisting of the denial of any pain whatsoever. His whole skin was slightly suffused with yellow; tongue dry and furred. He was sent up to bed, where I saw him in about half an hour: he was then completely comatose; I could not rouse him by any means: his breathing was inclining to stertor. I found that he had a sore place on his neck from a blister. He was to have his head shaved, to lose twelve ounces of blood by cupping from the region of the liver, and to apply a large blister on the part; to take five grains of blue pill thrice a day; to have a cathartic enema, and some cathartic medicine by the mouth.

2nd. He was so much relieved that he was able to give a rational answer to my short questions, but he denied having any pain; he had a great peculiarity in his mode of speaking, appearing to labour before he could utter, and drawing his mouth into various forms. Tongue still rather dry and furred. Stools passed in bed, natural in appearance.—The medicine to be continued, and another injection to be given.

I saw him again on the 4th: he was sitting a little raised in his bed, had taken some breakfast of tea and bread with apparent appetite. He had copious stools.

The blue pill once a day only; continue the cathartic medicine. Seeing one of the pupils in the afternoon while he was sitting in a chair to have his bed made, he expressed himself glad to see him, as he was very much better.

On the 5th he became more lethargic, and in the evening Mr. Stocker saw him still in that state, and ordered ten ounces of blood to be taken from the temporal artery: this gave no relief, and on Monday the 6th, about ten o'clock, he died.

#### SECTIO CADAVERIS.

A stout-made man, rather corpulent, too much fat on the abdomen, œdema of the lower extremities, particularly of the left leg and thigh.

The dura mater was, I believe, not cut into on taking off the upper part of the cranium; and as the body lay on its back the appearance of the anterior part of the dura mater was very peculiar: it seemed as though crumpled from something having made its escape and left it partially empty. On raising the dura mater a flat plate of bone was found about midway down the falciform process. The arachnoid was distended with fluid in a most remarkable degree; that which had gravitated towards the back forming bladders as large as on a surface most completely blistered by cantharides: there was a slight milky appearance observed on the arachnoid, but not very striking, and the white substance external to the longitudinal sinus, around the glandulæ Pacchioni, was very abundant. The whole of the medullary portion of the brain had a tinge of cream-colour



and not at all the natural brightness of that substance. In other respects the brain was natural, with the exception of a little effusion into the ventricles, which were about one-third full.

The bladder was full of urine. The intestines very healthy in appearance, though rather opaque, and contained a good deal of feculent matter. On looking to the spleen, the splenic vein was found greatly distended, and formed into convolutions more like the vessels of the cord of the placenta. The spleen somewhat larger than natural. The internal surface of the stomach, after the mucus was removed, showed the mucous membrane thickly covered with reddish vascular points. The liver was completely diseased throughout, rather diminished in size, and presenting the appearance externally of pudding-stone, in which the generality of the included pebbles were not larger than peas and horse-beans, but a few of the size of small plums, and these latter felt rather elastic; the surface of the liver was hard and harsh.

## CASE CXII.

*Vascular Congestion and Serous Effusion, causing Apoplectic Symptoms: Kidneys granulated: Urine coagulable.*

THOMAS TWEED, a labourer, aged 52, was admitted into Guy's Hospital, February 27th; he denied having been addicted to drinking, though from his general appearance this might be doubted.

Three weeks before, he was attacked with sickness, bitter vomiting, headache and diarrhoea, beginning with shivering; and at the same time he had a slight cough. As these symptoms did not continue with any severity, he had no medical advice till five days ago, when, his cough having increased, he applied as an out-patient, and was bled, with much relief. His countenance was bloated, his eyes blood-shot and watery, but he had scarcely any headache; a hacking dry cough; no pain on inspiration; the respiration was audible over all the chest, except the lower part of the right side, which was likewise more dull than usual on percussion. Slight pain on pressure at the epigastrium, with a sense of tightness at the scrobiculus cordis, and he had been sick in the morning. Abdomen soft; bowels relaxed the day before, with griping pain, and some blood had passed with the stools: pulse 75, compressible: tongue much loaded; a bitter taste in his mouth, with thirst: no appetite: urine scanty and high-coloured.

As the state of his bowels was that of which he chiefly made complaint, he was ordered to take half an ounce of castor-oil with two drams of tincture of rhubarb, and five grains of the compound ipecacuanha powder.



He gradually fell into a state of stupor, and on the following morning was found to be actually comatose, with stertorous breathing, yet capable of being so far roused as to put out his tongue, and he could even give an indistinct answer when pressed by questions. Bowels not open : tongue covered with a thick yellow coat : pulse labouring, but weak. He has occasionally expectorated with difficulty some tough mucus.

Applicetur Emplastrum Cantharidis Nuchæ et regioni cordis, et Cataplasmata Sinapis pedibus.

About mid-day he seemed to have rallied in some degree, so as to be able to explain, that about a month ago he fell down suddenly insensible, being seized with giddiness, in which state he remained ten minutes, after which he recovered, but had nothing done in the way of remedies at the time.

He was ordered to be cupped from the temples, and as he bore it very well without becoming faint, fourteen ounces of blood were taken : he obviously became more sensible from the loss of blood, and his pulse more free.

Injiciatur Enema ex Infuso Sennæ et Magnesiae Sulphate.

Habeat Hydrarg. Submuriat. gr. vj statim.

Applicetur Embrocatio communis capiti.

There was no material alteration during the day : his bowels were opened ; he was able to answer questions slowly and imperfectly, and a good deal of twitching of the tendons was observed.

29th. He remained much in the same state till this morning, when he had a fit, in which he struggled and was convulsed, expectorating with difficulty viscid mucus :— at the visit, pulse 96, very weak : face flushed ; he was in a state of stupor, though still able to answer and say that he suffered no pain. Bowels not open ; had passed no water : frequent convulsive twitchings of the extremities and of the whole body. The water was drawn off by the catheter.

In this state he lay without any material change, till two o'clock on the following day, when he expired, completely comatose, a quantity of frothy mucus issuing from his nostrils.

#### SECTIO CADAVERIS.

The face was bloated, and the body far from emaciated. The vessels of the dura mater were turgid, the arachnoid retained its natural transparency, and there was a considerable quantity of serum beneath it. The vessels of the pia mater were only moderately injected with dark blood ; this membrane, together with the arachnoid, separated readily from the surface of the brain, which offered nothing remarkable. The substance of the brain was of a perfectly natural firmness, but the medullary matter

throughout presented a remarkable marbling of a purplish colour, interspersed with minute bloody points, produced by the section of small vessels. There was rather more than the healthy quantity of serum in the ventricles; some patches of cartilaginous thickening on the carotid, vertebral, and basilar arteries.

Old pleuritic adhesions in the chest. The lungs gorged with blood, and the lower and back part of the right lung had gone into a state of hepatization, breaking down easily under pressure. The bronchial membrane in a state of congestion and covered with mucus. The heart rather large and flaccid; the valves healthy; a few opaque white patches in the aorta. The kidneys were found to be flaccid and of a pale colour, from extensive white deposit. This suggested the probability that the urine would coagulate, and on the trial being made with some which was in the bladder, it was found to coagulate very decidedly.

### CASE CXIII.

*Effusion of Serum beneath the Arachnoid, in a case of Anasarca, with coagulable Urine and granulated Kidneys.*

MARGARET FIELD, aged about 40, was admitted under my care, Dec. 10th, 1829, labouring under general dropsy. She was swollen in every part to a very great excess, the abdomen full of fluid, the legs anasarcaous, the hands and face the same; the countenance rather livid, and she was unable to lie down in bed. She had considerable cough, with much difficulty of breathing; pulse 106, regular. The liver was, I thought, to be felt distinctly as a hard body, lower than natural; but as a considerable quantity of fluid was interposed, this was doubted by some who afterwards attempted to discover it. The urine of a dark dusky colour, becoming clear by heat, and then coagulating very much. It appeared by her account, that on the 2nd of April last she went to the London Hospital with general anasarca, and remained there twelve weeks; during the whole of which time she took pills which were expected to make her mouth sore, but which did not. She left the hospital apparently well, but very weak, and subject to spasmodic twitchings. On the 4th of August she lay in with a child, having experienced no return of her dropsy. About a month after her confinement her present disease came on.

It was found in a day or two that her urine was very scanty, often not above three ounces in twenty-four hours; her stools were of a pitchy blackness, evidently from the mixture of blood.

Habeat Pil. Scillæ cum Hydrarg. et Misturam Camph. cum Liquor. Ammon. Acet. et Spir. Æth. Nitr. 3fs sexta quaque hora.

She took occasional doses of castor-oil, as she was always very desirous of having her bowels opened, which she said gave her great relief.

26th. Complains much of her bowels being confined.

R Elaterii gr.  $\frac{1}{4}$ .

Pulv. Ipec. Comp. gr. v hora somni.

Habeat Olei Ricini ʒvj cras mane, si opus fuerit.

29th. The elaterium opened the bowels very well and comfortably, and they have continued to act easily ever since.

Jan. 2nd, 1830. Lies down better; has taken the elaterium each night.

9th. Has been lying all night tolerably low upon the back. The pills do not act so regularly as they did.

12th. Swelling continues, but the urine is increased and her face is less bloated.

22nd. More urine; several stools of a good colour; lies on the right side.

24th. Much griping, and frequent motions slimy with blood.

Habeat Enema Amyli cum Tinct. Opii ʒfs statim.

Mist. Cretæ cum Mist. Camph. ā ʒvj et Tinct. Opii ℥ vj ter die.  
Foveatur abdomen.

25th. Pain and frequent stools much diminished, and she feels much better.

Repetatur Enema bis vel ter die.

26th. Griping and watery stools, with blood; urine abundant: she denies having any tenderness on pressure of abdomen.

Infus. Lini ʒij, Tinct. Opii ℥ v tertia quaque hora. Repetatur Enema.

27th. Opii gr. v. fiat suppositorium ter die utendum.

28th. Much relief since using the suppository.

Feb. 1st. Urine slightly coagulable, but I could only obtain a very imperfect specimen. The same appearance of the stools continued, but she was greatly relieved, and she found the swelling diminish; so that for a day or two there seemed a hope that she would rally; however, on the 4th she was obviously much weaker, and on the 5th began to grow a little more drowsy, which increased towards the evening, and afterwards for some hours before her death became a marked symptom. She died on the morning of the 6th.

#### SECTIO CADAVERIS.

Countenance bloated; legs œdematous; abdomen distended with fluid. Many quarts of clear serum escaped from the abdomen on cutting

through the parietes. Some fluid in the chest. The left lung showed a few adhesions : its substance was tolerably healthy, but the bronchial tubes of a dark colour, and covered with mucus. The right lung adherent in the upper part to the ribs; the superior lobe quite consolidated, as if hepatized by inflammation, and filled with suppurating points like tubercles, some of which were excavated and had discharged themselves; in this lobe the little lobules were in some cases singly hardened, while the next lobule was comparatively healthy: the lobes were firmly adherent, but the separation formed by the natural division had completely cut off the communication of the disease. The pericardium contained three or four ounces of fluid. The heart was firmly contracted and rather strong and thick in its muscular tissue; valves healthy. Liver hard, yellow; looking in its peritoneum the round marks were seen with intervening red lines, and on applying heat it proved to contain much fat. The gall-bladder contained mucus tinged pretty deeply with bile. Spleen and pancreas healthy. The mucous membrane of the stomach red and very easily separated. Small intestine pretty healthy. The mucous membrane of the large intestines in a most unhealthy state; from the valves of the cæcum to the anus in a state of ulceration, which had converted the whole into pits, covered with green sloughs, tinged with fæces: between which small patches of the mucous membrane were seen red and cedematous; when this had been injected from the mesenteric vessels, the size in part escaped into the intestines, and the red portions were most beautifully displayed. Uterus and appendages healthy, except that two or three little cysts on long foot-stalks hung from the neighbourhood of the ovarium.

The arachnoid afforded a very good specimen of the pure serous effusion.

The fatty tunics of the kidneys adhered firmly; the kidneys were lobulated, and a rough uneven surface thickly sprinkled with very small white flaky deposits; the whole felt hard, and cut firm.—It was not the most advanced state of disorganization.

## CASE CXIV.

*Serous Effusion under the Arachnoid in Anasarca, with diseased Valves, and granulated Kidneys; the Urine coagulable.*

JANE GEORGE, aged 36, but in appearance much older, was admitted into Guy's Hospital, under my care, November 4th, 1829. She had been subject for four or five years to an habitual dyspnoea, with occasional spitting of blood. She became the subject of ascites, and then of anasarca, about four months before her admission, at which time her whole body and extremities were greatly swollen. The face full, slight lividity of the lips, and puffiness of the right orbit. She lay on the right side, with the back raised and supported; and when she attempted to turn on the left, the distress and difficulty of breathing were increased, and the countenance grew purple: the veins of the neck and face, particularly the right jugular, distended, and the right carotid beat with unusual force: pulse 120, feeble, but not irregular: respiration 36: no augmentation in the impulse of the heart, but the strokes accompanied by a rasping sound, audible on both sides of the thorax: respiratory murmur mixed with some mucous rattle: the chest less resonant than in health: tongue without fur: bowels moved this morning: urine in small quantity, containing much deposit, becoming clear by heat, and then coagulating.

10th. No decided relief had at any time been afforded by medicines, and she now suffered continual nausea and sickness, and was more enfeebled and distressed, while the secretion of the kidneys was nearly suspended.

12th. At the morning visit it was found that no secretion whatever had taken place from the kidneys; that she had experienced frequent vomiting; and had become remarkably drowsy: lips more livid: countenance of a dusky hue: pulse 140, scarcely perceptible at the wrist: the muscles were constantly twitching and convulsed: nearly in this state she lived till the morning of the 13th, when she died.

## SECTIO CADAVERIS.

A few red blotches and vesications about the pubis. Considerable œdema of the lower extremities, but very little of the upper. Great infiltration into the cellular membrane of the trunk, particularly the thorax. Countenance livid. Abdomen distended.

Veins of the dura mater much enlarged and distended; considerable effusion beneath the arachnoid, forming a complete layer of transparent fluid; but little fluid in the ventricles. Vessels at the base of brain turgid, and the arterial circle of Willis gorged with dark venous-coloured blood. Substance of brain healthy, but rather vascular.

Strong adhesions between the pleura costalis and pleura pulmonalis, particularly at the anterior part of both lobes; the posterior more free, but in that part the false membrane was œdematous; the lung itself generally spongy, but of a solid or tough feel. Very close and general adhesions of a cellular character between the heart and pericardium. Considerable enlargement of this viscus, the right auricle being much dilated, with the muscoli pectinati much developed, and between them were some small fibrinous coagula: the tricuspid valve much thickened and contracted, so that the orifice would not admit more than the points of two fingers. The walls of the right ventricle were much thickened, and its size so much increased that it was as large as the left ventricle. Left auricle dilated, but not so much as the right. The opening of the mitral valve contracted, and the valves thickened and shortened; still, however, supposed to be capable of acting as valves. The parietes of the left ventricle nearly natural; the semilunar valves of the aorta had upon them several very small vegetations easily detached; one of the vertebral arteries was given off from the aorta.

The omentum was drawn together, forming a band across the abdomen, but was not firmly corrugated, being held together by a very slight adventitious membrane, which might be traced over the whole intestines and the mesentery, rendering them opaque and shorter than natural. The convex surface of the liver was firmly bound by old adhesions to the diaphragm; the gall bladder was contracted, and the liver was hard and unhealthy, containing much blood. Pancreatic duct healthy, as was the pancreas itself, except that its posterior part contained much blood. The mucous membrane of the stomach thick and granular, that of the intestines slightly œdematous. Kidneys granular and mottled, particularly the right; the tunic could not be removed without taking some of the substance with it. There was one part of the right kidney which appeared to have been subject to former inflammation and hardening; a watery cyst upon the surface connected with the tubuli uriniferi. Uterus much enlarged.

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In this case most complicated disease was traced after death, as had been easily anticipated from the symptoms. It is probable that the adhesion between the heart and pericardium had been first in the train of disease, for it was obviously of very long standing; and by the embarrass-



ment it occasioned had favoured the derangement in the valves, which had become very general: what influence the state of the heart exerts over the kidney is less obvious, nor is it clear that it is at all instrumental in promoting the mottling of this organ, though in many cases the two organs are found simultaneously diseased. Except the vegetation on the valves of the heart, which was quite recent, the cerebral affection was the last, and all the morbid appearances in the brain were to be ascribed to the congestion arising from the obstructed circulation and the unfavourable condition induced in the blood by the disease of the kidneys.

### CASE CXV.

*Apoplexy; Effusion of Serum under the Arachnoid; Disease of the Choroid Plexus; Anasarca; coagulable Urine; granulated Kidneys.*

— JESSY was affected twenty-seven years before his death with cough, expectorating a quantity of purulent matter of a most offensive character, which was ascribed to the bursting of an abscess in the liver, the matter finding its way by adhesion through the lungs. I remember him well for above fifteen years, during which time he has always been an unwieldy bloated man, and for several years past has been more or less anasarcaous: his legs always swelled, and his face and eyelids frequently puffing up like bladders: occasionally he has complained of being very drowsy, and has always spoken in a desponding tone.

April 7th, 1829. About twelve hours before his death he was seized with a fit, having the character of apoplexy, in which his pupils were contracted, and he was quite insensible: a small quantity of blood was taken from his arm, and he seemed to recover a little, so that he could speak and understand what was said; but the state of coma returned, and he died completely apoplectic.

### SECTIO CADAVERIS.

Some œdema of the face and legs; the whole body excessively covered with adipose matter. Lungs nearly healthy throughout, except in part of the right lung, where a degree of hepatization had taken place, so that it broke down under pressure, and some serous fluid mixed with blood came from it: no trace whatever of an abscess or of very old serious injury was to be found: no adhesion to the diaphragm or other parts. An unusual quantity of fat, forming folds, projecting into the chest in lumps or flaps.



The heart rather large : coronary vessels cartilaginous, not ossified. Valves healthy. Aorta with patches of cartilaginous thickening. The liver somewhat granulated and breaking down easily ; but having nothing like scar or trace of old severe mischief. Gall-bladder full of calculi, containing little or no bile. Pancreas healthy. The spleen with many small cartilaginous deposits in spots upon its surface. The mucous membrane of the stomach slightly irritated ; that of the intestines healthy.

The left kidney above the natural size, with three or four large vesicles upon it, granulated throughout its surface, and the starlike vessels on the surface very large. The tunica adiposa firmly attached to the kidney, as from former inflammation. The right kidney still more firmly attached to the tunic, which was nearly cartilaginous : the kidney slightly granulated. In the bladder about eight ounces of urine, of a deep colour, and coagulating very decidedly by heat, forming a darkish deposit.

The head being opened, a considerable quantity of serum was found under the arachnoid, forming bladders of water, and a few small opaque spots appeared in the arachnoid itself. The convolutions of the brain were unusually prominent, from the serum having collected between them. The brain itself natural, but the choroid plexus on both sides had a number of small vesicles ; and in each plexus there was a yellow rounded mass, of the size of a small bean, of hard matter, with a vessel running over it. The quantity of serum in the ventricles was by no means great.

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With regard to this case, it is first to be observed that the dissection was decisive as to the fact that no abscess had existed in the liver, communicating with the lungs, as had been confidently believed by those who saw the patient at the time when he was subject to large puriform and fetid expectoration. The second circumstance worthy of remark is the protracted tendency to anasarca, accompanied with decided granulation of the kidneys, and with coagulable urine.

The third point, and that which is more immediately connected with the subjects under our present consideration, is the condition of the choroid plexus, in which were found two hard opaque bodies, of the size of small beans—this is an appearance occasionally observed, and, as far as I have been able to ascertain, is very immediately connected with such derangement of the circulation as gives rise to apoplexy, either by the pressure of loaded vessels, the effusion of serum, or the effusion of blood ; for

I have seen it connected with each of these states. It may possibly be the result of the previous rupture of a vessel in the choroid plexus, and thus only show the morbid tendency which exists, or it may act simply as a predisposing or an auxiliary cause, as in the present case for instance, where there was another cause plainly to be traced in the derangement of the kidneys and the anasarous tendency, which frequently lead to a termination in apoplexy. Of the connection, however, of this morbid alteration of structure, with serious derangement of the cerebral circulation, either as cause or effect, I am strongly convinced from the cases I have seen. In page 97 of the former volume of this work will be found the case of William Wright, who died in a state of complete coma, into which he had been falling for many days; and the only morbid appearance discernible in the brain was a disease of this nature in the choroid plexus; (See Plate XIX. Fig. 4.). In the Museum of Guy's Hospital, No. 1587, is a tumor of this character, taken from the head of a man who died from sanguineous effusion between the arachnoid of the dura mater and that of the brain. And during the last winter, in a case which came under judicial consideration, and where an individual was nearly suffering punishment for murder, it was ascertained by dissection that death had been caused by apoplexy, with very slight effusion; and tumors of this kind, of the size of marbles, were detected in the choroid plexus; and it is somewhat remarkable that in the case I have just mentioned as preserved at Guy's,—a person was actually tried on suspicion of murder, but it was satisfactorily proved that the death was from natural causes. In the Museum of the late Mr. Heavyside was a well-marked preparation of this disease, in the choroid plexus of both ventricles, where death is said to have been caused by a blow on the head. I know nothing of the history of this particular case, but I am sufficiently convinced of the connection of this disease with fatal cerebral changes to inculcate caution in deciding on the cause of death where these tumors are found to exist.

#### CASE CXVI.

*Serous Effusion under the Arachnoid and into the Ventricles, with diseased Choroid Plexus, granulated Kidneys, and albuminous Urine.*

A PATIENT under the care of Mr. Morgan, with necrosis of the right arm, which had produced ankylosis of the ulna, appeared to be in tolerable health otherwise; he was

a stout thick-set man, with a short neck. It appeared that he had occasionally taken laudanum of his own accord on going to bed, and there was reason to believe that he had done so on the night of July 23d; but of this there was no other proof than his known habit, and a bottle found over his bed smelling of laudanum.

On the morning of July 24th he was found lying senseless in his bed in deep apoplectic sopor, with breathing nearly stertorous, quite incapable of being roused; countenance rather purple; pulse oppressed. He was bled to 20 ounces without the slightest relief; the pulse, however, becoming more frequent.

He died, without having recovered in the least, at 11 o'clock.

#### SECTIO CADAVERIS.

The dura mater healthy, and not remarkably loaded with blood. The arachnoid then came into sight, slightly opaque, having beneath it a decided serous effusion, filling the interstices of the convolutions, but not forming large bags like blisters, as is sometimes observed. The arachnoid and pia mater tore easily from the brain. The convolutions were not in the least flattened. Removing a slice from the hemispheres, the number of bloody points was decidedly less than usual; on the right side there was the marbled purplish appearance in some parts. In the posterior part of the left hemisphere, on making a deeper slice a good many vessels gave out blood. There was a turgid state of the vessels on the lining of the ventricles, and the ventricles contained a decided excess of fluid; the large vein of the plexus choroides was full of blood; the plexus itself was of a light drab colour, and a granulated appearance; and on the right side this became even more marked as it was followed into the posterior cornu, to which it adhered more firmly than usual. On the left side one part of the plexus in the descending portion of the posterior cornu formed a mere fleshy lump. In all other respects the brain was healthy; the vessels at the base quite healthy.

The lungs were perfectly healthy, but very close, and general adhesions united them to the ribs. The heart healthy, but the left side rather thick and firm. The abdomen appeared tympanitic, and on removing the integuments it was found that this was owing to the stomach being enormously distended with flatus. The intestines were irregularly contracted. The mucous membrane of the stomach was rather pale and soft, and the same was the case with the duodenum; some frothy yeasty-looking food in the stomach. No particular smell was observed to arise from the contents.

The liver rather large, gorged with blood, the left lobe in particular was too fleshy in its substance.

The bladder distended with clear pale urine, which on the application of heat showed evident signs of coagulation, becoming opaque and loaded with numerous small white flakes like the finest powder. The kidneys were both in an advanced state of granulation, pale in colour, and rough, almost tubercular on the surface.

The ankylosis of the olecranon was complete, a longitudinal section of the elbow joint giving a continuous structure throughout.

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In this case the symptoms of apoplexy occurred without any sanguineous effusion or any remarkable fullness of vessels. It appears probable that the state of the kidneys disposed in some degree to the serous effusion, or to the peculiar state of the circulation, on which the apoplectic sopor depended; it is difficult, likewise, to consider the state of the choroid plexus as unconnected with the event; the condition of this part was not precisely like that observed in the last case, though in many respects the two are extremely similar.

In all probability the immediate cause which determined the attack was the condition of the stomach, and it must always remain somewhat doubtful whether opium had any part in producing the symptoms. The urine, though very decidedly coagulable, was less so than in some cases where the disease in the kidneys has apparently been less confirmed.

### CASE CXVII.

*Serous Effusion beneath the Membranes of the Brain, with Sopor and Coma. Kidneys diseased. Urine coagulable.*

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—, aged 73, admitted under Mr. Morgan, labouring under great difficulty of passing urine, with the symptoms of stricture and enlarged prostate, and considerable muco-purulent discharge from the bladder. He had been able to walk about the ward, but was somewhat feeble, and had an irregular and intermitting pulse. About three days previous to his death he was observed to become excessively drowsy, sleeping day and night, often so sound as scarcely to be roused; and the evening preceding his death, though he had been sitting up, he was so overcome by sleep as to neglect taking off his clothes when he got into bed.

## SECTIO CADAVERIS.

This took place eight hours after death.—The body was most perfectly rigid ; the neck and legs quite inflexible ; the arms only, capable of being bent. The body emaciated, but tolerably muscular.

The lungs generally rather emphysematous, but collapsing partly on admission of air into the thorax. A few old adhesions towards the apex, and some hard lumps like tubercular matter mingled with much carbonaceous matter, and forming solid masses. The lower lobe of the right lung had been affected very recently with inflammation. It was solid in appearance and red, but on squeezing was found to be full of serous fluid, which ran copiously and full of air from the bronchi and the blood vessels. The pleura was covered with a thin pellicle on this part, and its surface beneath the pellicle finely injected with red blood. A few ounces of serum in the cavity of the pleura. The heart most firmly contracted ; the left auricle much distended ; but the ventricle on that side thick and contracted, so as to leave scarcely any cavity. The mitral valve greatly diseased ; ossified in the whole circumference of the base ; the tricuspid valves also thickened in a degree not often seen in those valves.

On the anterior part of the brain the convolutions were elevated and compressed laterally in a very striking manner by the fluid lying between them ; at the back part this was less obvious, probably from the position of the body after death.

The liver was healthy, but had received three very deep impressions on its convex surface from the diaphragm, which was rather peculiarly divided into separate large fasciculi, very strong, probably from the difficulty of the respiration, owing to the emphysema of the lungs. Pancreas hard in texture, and its duct filled with a gray mucous substance throughout, nearly resembling starch, its lining membrane decidedly thickened. Spleen small, contracted, having its peritoneum beset with small cartilaginous deposits. Stomach healthy. Small intestines strikingly contracted. Kidneys adhering very firmly to the adipose tunic, which when torn off had a firm hard surface, appearing to have been subject to frequent inflammation. The kidney itself very unhealthy, yellow and clouded throughout, with evidence of the granulating process in different parts. Pelvis of both kidneys dilated. Ureters considerably dilated. Bladder contained about three quarters of a pint of urine, which was turbid and

white; on standing, a pus-like fluid subsided, leaving the upper part comparatively clear; when it was submitted to heat, it coagulated freely; when filtered quite clear, it did so in a less degree. The thicker parts with the sediment coagulated very much. Bladder thickened, the muscular bands very strongly marked, reticulating the mucous surface, and in one or two places near the fundus, forming sacs; but there was nothing like ulceration of the surface; the ridge between the two lobes of the prostate gland projected a good deal. The prostate somewhat enlarged. In the urethra some little orifices like enlarged mouths of follicles.

On removing the calvaria the dura mater looked unusually thick and opaque, and when this was raised the inner membranes were seen greatly distended with serum. I scarcely remember to have seen a case in which this was so marked; it was greatest at the anterior part, although the body had been lying on its back, but it likewise formed a complete layer of fluid, not less than a quarter of an inch deep over the whole. This fluid had not divided the arachnoid from the pia mater, but appeared to fill the spongy vascular texture of the pia mater, raising the arachnoid and the large veins; yet by care we were able to strip off small portions of a thickened membrane from the surface, leaving the large veins untouched.

#### CASE CXVIII.

*Effusion under the Arachnoid in a weak exsanguine man, with tuberculated Lungs.*

— OSBORNE was admitted under the care of Mr. Cooper with hydrocele, he was strikingly pallid and sickly in appearance, and stated that some years before he had suffered severely from intermittent fever. He had a cough, which gradually increased, and frequent palpitation of the heart; he grew weaker, the expectoration became more abundant, and after being in the house several weeks he died.

#### SECTIO CADAVERIS.

The upper lobe of each lung was disorganized by a process of disease, which had evidently been attended with the slow deposit of tuberculous matter; there was but little appearance of miliary tubercles, but the indurated masses had suppurated, and the pus had passed off by the bronchi. The heart was rather large but flaccid. The mesenteric glands rather enlarged.



The whole surface of the brain was covered with a serous effusion, filling the spaces between the convolutions. The hydrocele was confined to one side, and both of the testes presented a peculiar morbid appearance, two or three small vesicles growing out of each epididymis, attached by peduncles, such as are frequently seen growing from the Fallopian tube ; they were obviously vascular, and even admitted of injection.

### CASE CXIX.

*Serous Effusion under the Arachnoid and into the Ventricles in a case of Emaciation, with bilious vomiting and diseased Renal Capsules.*

ANN ROOTS was admitted, in July 1829, under one of the surgeons, into Guy's Hospital, on account of a tumor in the left breast, and a swelling of the right parotid ; but as it was perceived that she was greatly emaciated and apparently sinking, and therefore quite unfit to undergo any operation, she was transferred to the care of the Physician. Her complexion was very dark, her whole person emaciated ; she had no cough, and neither tension nor tenderness of abdomen : she had great difficulty in opening her jaw, owing to the glandular swelling, and could not protrude her tongue. There was no indication but to support the strength : her stomach soon became irritable ; she had bilious vomiting, which reduced her strength, and for a day or two before her death, which took place on the 18th of August, she became drowsy, yet capable of being roused ; complaining of some pain over the forehead, and occasionally wandering a little in her intellects.

In the absence of all positive symptoms I concluded that it was possible some glandular disease, similar to that which had shown itself below the mammae and under the jaw, might exist internally, giving rise to emaciation and vomiting ; and it appeared probable that serous effusion had been going on in the head for the last few days.

### SECTIO CADAVERIS.

Considerable emaciation ; and on removing the integuments the scalpel opened into an abscess containing an ounce or two of pus situated beneath the mamma of the left side. The dura mater was firmly attached to the skull at the vertex, where the bone was remarkably thin and indented by the glandulæ Pacchioni and the ordinary opaque deposit which surrounds them. On raising the dura mater several small opacities were observable on the arachnoid, and a very considerable quantity of serous fluid was effused under the arachnoid, raising it into bladders as well as filling up the hollows between the convolutions. The whole brain was soft and



watery, and many vessels showed themselves when horizontal sections were made. In the ventricles about half an ounce of fluid was collected. The choroid plexus was quite exsanguine.

Slight adhesions of the pleura pulmonalis and pleura costalis were found, but not sufficient to prevent the lungs from collapsing pretty completely when the air was admitted into the chest; the upper lobe of each lung was in an unhealthy state, looking puckered and containing one or two masses of earthy matter, besides several small incipient tubercles; the greater part of the lungs, however, was in a very healthy condition. Heart small but healthy. In the abdomen slight old adhesions had taken place in various parts, but they were composed of the finest transparent cellular tissue; even the omentum, which was glued by them to various parts, both of the intestines and the parietes, had lost none of its natural delicacy and transparency. The intestines were healthy, but stained with bile; the mucous membrane healthy. The liver healthy, and the gall-bladder full of bile. The pancreas healthy, and the spleen also; but just between the pancreas and the spleen a few absorbent glands were enlarged. The glands of the mesentery were also slightly enlarged.

The only marked disease was in the renal capsules, both of which were enlarged, lobulated, and the seat of morbid deposits apparently of a scrofulous character; they were at least four times their natural thickness, feeling solid and hard; on the left side one part had gone into suppuration, containing two drams of yellow pus. The kidneys themselves healthy. The uterus held down by adhesions in the pelvis.

### CASE CXX.

#### *Effusion of Serum under the Arachnoid and into the Ventricles, without Inflammation.*

JOHN JONES, aged 40, a robust and plethoric man, by trade a glass-stainer, was admitted into Guy's Hospital October the 10th, 1827. He had for several years been in the habit of drinking largely, particularly of ale, and he stated that for the last seven years he had occasionally taken not less than twenty pints of ale in a day. About seven years ago he was ill, and was salivated for what was considered an affection of the liver, and he also stated that he had had a similar attack before. Since his last illness he had enjoyed good health till within six months, during which period he had been liable to coughs and catarrhs, which frequently interrupted his employment. About a week before his admission he was attacked, while at work, with shivering and pain in the abdomen, followed by sickness and bilious vomiting which continued

for two days. Dyspnœa and cough came on, and four days ago he was first observed to be the subject of jaundice. His skin at his admission was of a bright yellow colour, particularly about the chest, while his arms were of a paler tint. The conjunctiva suffused with bile; frequent short cough, causing pain at the pit of the stomach, but without expectoration: respiratory murmur, audible over the whole chest, and clear; abdomen soft, but pressure on any part of it, though chiefly the epigastrium, gave a dull pain: four or five light-coloured dejections daily. Urine of a deep saffron colour. Tongue thickly coated with a gray fur: the easiest position was lying on the right side. Skin hot: pulse 100, full; countenance distressed: he seemed drowsy.

*Fiat Venæsectio ad ℥xiv.*

*Habeat Hydrarg. cum Creta gr. v statim, et Olei Ricini ℥ss post horas quatuor.*

9 P.M. The blood is neither buffed nor cupped; the serum of a yellow colour: he feels relieved by the bleeding, but is restless, and lies moaning constantly. Pulse more compressible and rather less full.

11th. Passed a better night than he has done lately, being more free from pain. Pulse 100, full, but compressible; tongue less loaded: epigastrium less tender, but some pain below the umbilicus. Three small pale dejections. Urine a pint and a half, of a dark saffron colour;—a deep inspiration causes cough.

*Repetatur Venæsectio ad ℥xij.*

*Habeat Pilul. Hydrarg. gr. v cum Opii gr. fs ter die, et Mist. Magnesiæ cum Magnes. Sulphat. bis die.*

12th. The blood is very much buffed, and cupped with a large quantity of yellow serum; abdomen less tender, though he still cannot bear pressure on the region of the liver. Pulse 94, full: one small loose yellow dejection. Tongue dry and rough, with a brown coating; urine very deeply coloured: no particular heat of skin; great thirst and drowsiness; countenance more tranquil. Cough less troublesome; no expectoration.

*Applicentur Cucurbitulæ Cruentæ regioni hepatis, et detrahatur sanguis ad ℥xiv.*

*Olei Ricini ʒvj statim. Repetantur Pilulæ et Mistura.*

13th. Several small dejections tolerably coloured with bile; urine more turbid, of a browner colour: tongue brown: skin less yellow: pulse 104, compressible.

*Applicetur Emplastrum Cantharidis regioni hepatis.*

*Hydrarg. cum Creta gr. v. ter die.*

*Mist. Magnesiæ cum Magnes. Sulphat. pro re nata.*

Under this treatment the jaundice subsided rather speedily, so that by the 17th the skin had become nearly natural; the urine of a much lighter colour, and the stools, though they varied frequently, were, upon the whole, nearly healthy. His cough and

the symptoms of disordered chest increased, and the expectoration put on a purulent character.

Nov. 10th. He does not rally in the least, but becomes weaker ; there is a general tremor to be observed about him to-day, and a drowsy unwillingness to move.

12th. Passes *faeces* in bed without asking for assistance. The tremor of the whole body and limbs continues ; pulse 130, weak : tongue dry when he wakes ; cough increasing. From this time he became worse daily : ecchymosis took place in the parts where pressure was made by lying, and sloughing over the sacrum followed.—He died on the 17th of November.

#### SECTIO CADAVERIS.

About half an inch of adipose matter over the whole surface of the chest and abdomen. The upper lobe of the left lung adhered very firmly to the ribs ; and on endeavouring to detach it, some cavities towards the apex, of the size of moderate walnuts, broke down, and the pus was poured out : the whole of that lobe was in an advanced state of phthisical disease, full of miliary tubercles going into suppuration. The bronchial tubes considerably irritated : the lower lobe was healthy, with one or two small miliary tubercles feeling very hard. Right lung perfectly healthy, except that it was a little too much distended with air and slightly emphysematous. The heart quite healthy, and large vessels the same.

Liver of a dirty olive-green colour throughout ; no peritoneal adhesion or thickening. The gall-bladder contained a sufficient quantity of bile, but rather light-coloured and mucous ; there was no obstruction to the ducts. Spleen soft ; pancreas healthy. Kidneys pale flaccid, and large ; far from healthy, but without morbid deposit ; the surface when denuded quite smooth. The small intestines healthy, but rather thin ; the colon throughout irritated or inflamed, and in many parts corroded with creeping ulcerations. Considerable omental hernia on the left side. The stomach was of one uniform dark gray colour, manifestly from high irritation, and the pylorus unusually contracted ; so that with difficulty it would admit the top of the little finger.

The arachnoid was opaque, with a very considerable effusion of serum beneath it over the whole head, but more particularly on the right side : on drawing the pia mater from the brain, it separated freely and appeared loaded with serum between all the convolutions. The ventricles were distended with a few drams of clear serum. The arachnoid at the basis also opaque and containing serum.

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In this case there can be no doubt that the effusion in the brain was taking place for several days, and gave rise to that paralysis, tremor, and the tendency to coma which preceded death; and judging from the condition of the lungs, great part of which was still free from disease, it is probable that this was the immediate cause of death. There was no reason to ascribe the effusion of serum to any recent inflammatory action, though the opacity of the arachnoid seemed to show that the long habit of exciting its vessels by the use of fermented liquors had paved the way for the effusion which took place when the system was weakened by disease.

### CASE CXXI.

*Hemiplegia connected with extensive Serous Effusion into the Ventricles, and a superficial Excavation on one of the Convolutions.*

THOMAS HOLME, aged 45, a carpenter by trade, was admitted into Guy's Hospital June 9th 1824. He had been ill for two years with anasarcaous swelling of the legs and thighs, during which time he was for three months under the care of Dr. Powell at St. Bartholomew's Hospital. He was cupped on the region of the liver, took an infusion of juniper and supertartrate of potash, and had other remedies administered to restore the action of the liver and of the bowels, and the secretion of the kidneys. On the 18th of July, and again on the 3rd of August, having suffered fits, in which he became completely hemiplegic on the left side, he was each time cupped and blistered at the nape of the neck. He recovered to a certain extent, but left the hospital at the end of August, still somewhat anasarcaous and hemiplegic. He was again admitted, December 22d of the same year, in a state of great general debility, and the left side almost useless. Skin yellow; abdomen, face, legs, thighs, and hands swollen, particularly on the left side: urine scanty; pulse exceedingly weak and irregular; much cough and dyspnoea, with inability to lie down in bed; the liver was distinctly to be felt. These symptoms, with occasional varieties, continued for one month, when he died.

### SECTIO CADAVERIS.

On first opening the dura mater, the brain was seen in a very exsanguine state, and on the left hemisphere, close to the temple, one of the convolutions was excavated to the extent and depth of half a hazel-nut; it looked clean, and more like a cavity which had contained purulent fluid,

than like a recent ulcer ; (Plate XIII. Fig. 2.) The lateral ventricles of the brain were so much distended with fluid, that, although some ounces escaped in the dissection, we were able to collect seven ounces and a half of perfectly limpid fluid ; the whole quantity was estimated at about eleven ounces. The right ventricle was decidedly the most distended, and its parietes had the natural inequalities of its surface most completely compressed and smoothed down ; (See Mus. Cat., No. 1589.)

The lungs were tolerably healthy, except from recent congestion. The heart was greatly enlarged, and universally adhering to the pericardium. The liver not greatly enlarged, but indurated and altered in its shape, so that the acute margin was quite as much rounded as the obtuse margin itself ; the substance was mottled, and the peritoneal coat much thickened, or covered with an adventitious membrane by which the gall-bladder was so bound down as to present no other appearance than a thickened patch on the under surface of the liver. The gall-bladder contained a very small quantity of mucus tinged with bile ; its ducts appeared pervious.

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In this case it is not improbable that the condition of the heart laid the first foundation for disease ; and when the exposures incident to the life of a labouring man induced irregularity in the circulation, through the other important viscera, the general anasarca and the effusion into the ventricles followed as consequences. There is much reason to suppose that the hemiplegia depended upon the pressure of fluid in the ventricles, and that this was chiefly poured out in the months of July and August, about five months before death : the fact that the left side suffered most, while the right ventricle had been most distended, favours the conjecture ; and on the other hand, the excavation in the surface being on the side which suffered most from paralysis, leads us to suppose that it had less influence in producing those symptoms : at the same time it is not quite evident to what cause we are to ascribe excavations of this kind ; not improbably they are the results of laceration and injury of the brain, followed by absorption of the injured part.

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The following are the only three cases of DIABETES in which I remember to have examined the condition of the brain ; and in all of them serous effusion was discovered.

### CASE CXXII.

*Serous Effusion beneath the Membranes and the Ventricles of the Brain in Diabetes ; with great mental Depression and bodily Exhaustion.—Death from gangrenous Inflammation of the Lungs.*

BENJAMIN BAXTER, aged 19, was admitted under my care into Guy's Hospital, October 29th 1828, labouring under well-marked symptoms of diabetes. He stated that seven months before, he was a stout and fleshy man, but that for the last four or five months he had been gradually becoming emaciated ; he said that he had suffered greatly from thirst, and had, during his whole illness, passed more urine than the quantity of fluid taken ; his appetite was inordinate. Skin dry ; mouth clammy ; tongue red at the edges, clammy over its surface : pulse 88, weak. His speech slow and measured, beyond what could be accounted for by the condition of his tongue, and he complained of weakness across his loins ; he was drowsy ; his manner was dull and sleepy, but patient and resigned. The urine of a light straw-colour, exceedingly clear and bright, and the quantity passed in twenty-four hours was fourteen pints, each pint yielding nearly two ounces of extractive matter, decidedly sweet, and granulating like honey, when kept for a few days.

The remedies which he took were the uva ursi and the conium, with alum whey ; the carbonate of magnesia ; the sulphate of zinc ; fomentations to the bowels ; with a view both of allaying some pain in that part and to promote perspiration, and afterwards the warm bath. He was likewise once or twice bled from the arm, and during the whole time he abstained almost entirely from all vegetable food, except a little bread.

Very little abatement took place in the quantity of urine passed under any of these remedies, although the magnesia certainly afforded relief to many of his unpleasant feelings, and the perspiration excited by external warmth was grateful to him while it continued. On the 15th of December he began to take a single grain of opium three times a day, which was afterwards increased to two grains. And under the use of this remedy within a fortnight decided amendment might be marked ; the urine likewise diminished to nearly half of its former quantity, the extractive matter was less saccharine, but remained in the same proportion as before, two ounces to the pint. From the 2nd of January to the 26th he likewise took a dram of valerian in powder three times in the day. The alvine dejections, under the use of the opium, put on a singular character—they were not deficient in quantity, but were of a most massive figured character ; indeed before he began taking the opium there was something of

the same kind, but less marked. The two grains of opium seemed to have considerable effect in increasing his natural drowsiness, and it was therefore not thought desirable to add to the quantity for several days, but on the 13th he took two grains and a half.

Jan. 26th. For the last day or two it has been observed that the pulse has been remarkably weak, and although he is walking about, it is scarcely to be felt at the wrist. He has felt increasing debility; the urine does not exceed six pints in twenty-four hours; stools very copious and solid, but do not pass readily without medicine.

27th. He complains of pain under the right clavicle, shooting down that side of the chest quite to the diaphragm, and this pain is increased by coughing or by stooping; he is greatly emaciated, and his pulse feeble. He was put upon low diet, had cathartic medicine prescribed, and a large blister applied to his chest.

28th. Two o'clock P.M. Pulse 160, weak and thready; his breathing is short; he fears to cough on account of the pain in the right side of the chest, and when gentle pressure is made upon the intercostal spaces between the fourth, fifth and sixth ribs, he complains of sharp pain. Tongue not furred, but rather dry and contracted.

Applicentur Cucurbitulæ Cruentæ lateri dolenti, et detrahatur sanguis ad ℥xij.  
Habeat Hydrarg. Submur. gr. ij, Opii gr. j, Antim. tartar. gr.  $\frac{1}{2}$ , forma pilul.  
tertia quaque hora.

Four o'clock P.M. He feels somewhat relieved by the cupping; pulse 120, rather firmer.

Fiat Venæsectio ad ℥viiij.

Ten o'clock P.M. The bleeding has afforded some relief; the blood is covered with a thick sily coat.

Repetatur Venæsectio ad ℥xiiij.

Repetantur Pilulæ tertia quaque hora.

29th. The last blood is not buffed. The cough is more free, but still gives pain in the right side of the chest: pulse 92. Expectoration brown and gelatinous, adhering to the sides of the vessel. Urine two pints, of a much higher colour, nearly natural in that respect; on being evaporated it yielded nearly as much extract as before, but it was decidedly less saccharine. Countenance improved; tongue more moist.

Repetantur Pilulæ tertia quaque hora.

30th. Has passed a comfortable night. Pulse 88, weak and soft; tongue moist and clean. Countenance still improving. Expectoration of the same character, but less brown, and diminished in quantity: he continues to feel pain on coughing or moving.

Repetantur Pilulæ.

31st. Pulse 86, soft: urine less than natural; cough still troublesome.

Feb. 1st. Pulse 80; tongue quite clean and moist: expectoration less tinged, but he complains of more difficulty in getting it up.



*Repetantur Pilulæ quarta quaque hora.*

*Mist. mucilaginosæ cum Oxymel. simpl. et Vin. Ipecac. m xx pro re nata.*

Feb. 2nd. Pulse 76; respiration 28. Expectoration lighter in colour, but still gelatinous in appearance.

*Repetantur Pilulæ sexta quaque hora.*

3rd. Has passed a tranquil night. Pulse 76: expectoration less tinged, and approaches nearer to natural mucus: takes a pretty deep inspiration without pain. Urine four pints in fifteen hours; more urinous than formerly.

*Repetantur Medicamenta.*

4th. Much better in all respects. Urine less than yesterday, and he was not disturbed with it once during the night. Expectoration very slightly tinged.

*Repetantur Medicamenta.*

6th. Expectoration more puriform, less tinged. Urine rather increased: pulse 88.

7th. Cough frequent; expectoration completely puriform.

*Applicetur Empl. Cantharidis sterno.*

*Omit. Pilul., et repetatur Mistura.*

9th. He has a short frequent cough, which prevents his sleeping; expectoration yellow, nearly like cream, with a sour and slightly fœtid smell.

*Extract. Hyoscyami gr. v sexta quaque hora.*

*Repetatur Mistura.*

10th. Has been attacked this morning with symptoms plainly indicating inflammation of the left lung. Pulse 117, more sharp; pain under the left clavicle, passing down to the diaphragm. Respiration 44, with slight sound of mucus in the trachea.

*Fiat Venæsectio ad ℥viij.*

*Habeat Hydrarg. Submur. gr. ij, Opii gr. j, Ant. tart. gr. ¼, tertia quaque hora.*

11th. Pulse 108; respiration 48. There is pain on pressure on the intercostal spaces; great puriform expectoration; tongue rather dry towards the base.

*Applicentur Cucurb. Cruentæ lateri sinistro, et detrahatur sanguis ad uncias decem. Applicetur Empl. Cantharidis postea.*

12th. Coughed much in the night, expectoration decidedly fœtid; countenance flushed, covered with perspiration. Pulse 104. He became gradually more feeble, and died on the night of the 13th.

In this most marked and decided case of diabetes, we have to observe the effects of opium in diminishing the secretion of the kidneys; it cannot, however, be said that the general improvement in the patient's health was ever such as to promise a favourable result, and the fatal supervention

of pneumonia and pleuritis may be considered amongst the most ordinary circumstances which occur towards the close of this disease. In the present instance the successive steps of these inflammatory affections, as they attacked first the right and then the left side, were marked by most decided symptoms. The important practical question which arises is, how far more active depletion might have been adopted when the inflammation betrayed itself. I was well aware of the probably fatal termination to which the pneumonia would lead from the very first day of its appearance; but the patient was already emaciated to the utmost, the pulse was scarcely to be felt, there was no flushing of the face, no febrile excitement. Still, however, he bore the bleeding well, and I confess that on the 3rd and 4th of February I began to think more favourably of the result; then, however, the character of the expectoration left no room to doubt that suppuration had taken place, and the fresh attack which seized upon the opposite lung, found him in a condition still less likely to withstand its effects, and less fitted to admit of active depletion.

#### SECTIO CADAVERIS.

The utmost emaciation; the integuments were almost like thick paper. One testis alone occupied the scrotum. The cartilages of the ribs were particularly soft; on raising the sternum the lungs collapsed pretty well, and were seen pallid and of a nearly healthy appearance. On further examination the left lung was found to adhere, though not very firmly, at its lower and posterior part, and a most marked and curious appearance presented itself; a portion of the pleura costalis of nearly an oval form near the angles of the ribs was inflamed, in length about six inches, and three inches broad at its widest part. On this, when the lung was gently torn away, was left a thick layer of coagulable matter, at the lower part opaque and yellow, but the greater part looking like a yellow gelatinous semitransparent deposit; this was composed of fine filaments of fibrinous matter, containing a yellow fluid in its meshes. The membrane on which this lay, for the extent of an inch all round, was almost purple with vascularity, which, on close examination, assumed the most beautiful dendritic forms. When this portion of pleura was stript from the ribs, the lower side was covered with bloody points, on which stood drops of blood, showing how completely in a thin subject such as this the

vessels of the pleura are under the command of local bleeding by cupping or leeches. The corresponding portions of the pleura pulmonalis were nearly in the same condition.

Besides this state of the pleura, the lower lobe of the lung itself had been inflamed almost through its whole extent, and was in a state approaching to hepatization, but combined with some œdema, and on the lower part of the lobe was a circular patch of gangrene of the size of a crown-piece, which showed the limits of a gangrenous mass beneath, proceeding towards the part lodged on the diaphragm, where two circular patches of the same character were seen. This lower surface of the lung adhered to the diaphragm by thick layers of lymph, as the other part of the lung did to the pleura; and the diaphragm all around was inflamed, so that the deep purple inflammation pervaded to the lower surface of that muscle; and even the spleen, which here came in contact with the diaphragm, was rendered of a dark colour at the point of contact. The gangrene of the lung at the part was complete, forming a green mass, more like mud than pus, and smelling most offensively: it had not apparently discharged itself at all, but was pretty well separated by a thin membranous division from the neighbouring part of the lung. In the same lobe, higher up and at the distance of two inches, was a circumscribed cavity of the size of a hazel nut, full of the most perfect yellow pus. The upper lobe was nearly natural, a little emphysematous, and containing some serum. No tubercular deposit had taken place.

On the right side of the chest precisely the same process had been going forward, but the disease of the pleura was not quite so extensive, whereas the disease of the lung was still more so, and both the one and the other were in the more advanced stage. The adhesion to the pleura was much more firm, so that the gangrenous portion of the lung could not be separated without lacerating the pleura of the lung, and thus opening into the cavity, which appeared to be making its way through the skin between the ribs, though it probably would never have done this, as it was found to communicate very freely with some large branches of the bronchi by which it had evacuated much of its contents. In the centre of this large gangrenous cavity was a slough, still connected loosely to the sides, and hanging from a kind of stalk, where the lower surface of the lung lay upon the diaphragm. On this side the adhesion was more firm than on the other, and numerous straight vessels were seen running from the one sur-

face to the other in the fine filaments of the newly formed membrane. The middle lobe was hepatized in some parts; the deposit in its structure assumed somewhat the aspect of tubercular matter deposited in lumps, but no complete tubercles were found. The upper lobe was like the upper lobe on the other side.

The heart was small, but healthy. The aorta healthy. The thoracic duct was likewise healthy, but contained no chyle. The liver was remarkably healthy, but a little gorged with blood; the spleen discoloured, but healthy. The mesenteric glands rather enlarged: the stomach small, the mucous membrane white, a little thick and firm: the duodenum healthy. The small intestines had in them three well-marked intussusceptions, and, what was somewhat curious, two within six inches of each other were in opposite directions; in one, the upper portion had entered the lower; in the other, the lower had entered the upper. The cæcum and colon were manifestly diseased; in the first third the mucous membrane was eroded in some parts, in others in a state of slough along the edges of the valvula conniventes.

The kidneys were of a full size, rather large, firm, and of a deep chocolate colour, showing the texture of the tubular portions in a very marked manner; they evidently contained much blood; the renal capsules healthy, but red with blood. The bladder, rather distended with urine, showed its muscular structure very plainly.

The left testicle was found quite within the abdomen, never having descended lower than the brim of the pelvis; it was considerably smaller than natural, but retained the ducts and secreting structure quite perfect.

The dura mater adhered with remarkable firmness to the skull; and when removed from the brain, we found a large quantity of serum effused under the arachnoid, and passing in between the convolutions, thus widely separated from each other. I scarcely remember to have seen this appearance more marked, and the vessels were distended with blood in a remarkable degree, and many had assumed a most singularly tortuous form, apparently from their fulness and the space afforded them to derange their usual situation and course. The brain itself was flaccid rather than softened; it tore in some parts while the pia mater was being detached,—but the fibres of its structure forming the corpus callosum, admitted of peculiarly easy separation. The ventricles were rather distended with fluid. The

cerebellum was unusually soft throughout its whole extent, almost amounting to a state of "softening."

The pituitary gland was fleshy, breaking under pressure like a piece of natural kidney of the same size.

### CASE CXXIII.

*Effusion of Serum beneath the Arachnoid and into the Ventricles, in a case of Diabetes.*

WILLIAM CLISSOLE, aged 26, was admitted under my care, October 21st, 1829. For the last five weeks he had been gradually becoming weak and losing flesh; his aspect was striking from the evidence of emaciation in the cheeks; his skin was dry, his eyes glassy; gums tender: the breath exhaled a peculiar faint odour; bowels costive; appetite very great, and thirst constant. He passed six pints of sweet straw-coloured urine in twenty-four hours, which yielded a very abundant saccharine extract by evaporation. As this was a well-marked case of the disease, he was transferred to the Clinical ward, and was returned to the ordinary ward in December, very nearly in the state in which he was in October, but he was losing weight rapidly. Various remedies had been tried, amongst which the animal diet and hydrosulphuret of ammonia were those which were most rigidly persisted in.

One of the chief features of his present state was a growing imbecility of mind; and he complained of weakness and dimness of sight. Free purging at one time appeared to do him some good, and the secretion of urine decreased under the use of opium, of which he took from one to three grains three times a day, for some weeks. He did not, however, seem to bear the opium well; for he was more than usually drowsy, and even fell on one occasion to the ground, apparently in a fit. The urine, though diminished in quantity, retained its unhealthy character, and if left for twenty-four hours, fermented, throwing up a white froth, which afterwards sunk. At one time he had incontinence of urine, which was relieved by blisters to the loins and pubis, and the tincture of cantharides. About the middle of March some catarrhal symptoms came on, with oppression on the chest; for this he was cupped and blistered, and took various remedies; but the symptoms of debility increased, and a very slight cough was experienced,—and on the morning of the 9th of June, just after he had been speaking to the nurse, he was found lifeless in his bed.

### SECTIO CADAVERIS.

Great emaciation. Phymosis, with a great collection of the secretion of the follicles under the prepuce.

Both the lungs had in their upper lobes large cavities lined by semi-

cartilaginous membranes, and containing pus; there were also many tubercles through the whole extent of the lungs—several parts were however in a tolerably healthy state. The heart was unusually small, and the cellular membrane about it, more particularly at its apex, hung in bags containing serum.

The liver was a beautiful specimen of the healthy organ. The gall-bladder full of rather light-coloured bile. The spleen healthy, the pancreas small and dwindled. The renal capsules rather dark-coloured; the kidneys perfectly healthy, both in appearance and consistence,—but rather dark-coloured and firm. The omentum and the mesentery were both of them remarkably free from fat, and loaded with serum; the mesenteric glands, not larger than split peas, were remarkably obvious on account of the emaciated state of the mesentery. The abdominal nerves and the absorbents appeared healthy. The stomach and intestines had no traces of disease.

When the calvaria had been removed, the dura mater was by no means tense, but on the contrary inclined to lie unevenly, and on raising it a very decided though not a very excessive quantity of serum was seen beneath the arachnoid. The arachnoid and pia mater were natural in appearance, and easily stripped from the brain. The convolutions were not flattened; but on drawing the hemispheres asunder, the corpus callosum was found to be highly arched, and fluctuation was easily detected beneath it; the whole hemisphere indeed appeared flaccid, and gave a fluctuating sensation when moved. The ventricles were found to contain at least six ounces of the clearest fluid. The septum lucidum was attenuated to such a degree as to be little more than a net-work of vessels and to allow the fluid to pass freely from one ventricle to the other. The smaller ventricles were filled also with serum, but the commissura mollis was entire; on the peduncles of the pineal gland were one or two small substances like millet-seed, of a yellow colour. The whole substance both of cerebrum and cerebellum was soft and watery.

#### CASE CXXIV.

*Effusion of Serum beneath the Membranes and into the Ventricles, in a case of Diabetes.*

THE following case of Diabetes presents, in the morbid appearance of the brain, a striking similarity to the other two I have detailed. I saw but little of this patient



during life, though I observed his emaciated appearance, and examined his diseased urine occasionally as I passed through the ward.

#### SECTIO CADAVERIS.

The body emaciated in an extreme degree.—Phymosis.

Lungs and heart quite free from disease. Liver very healthy, not having the least of the mottled appearance so common, and scarcely any marks of texture. Gall-bladder small and empty. Spleen healthy. Pancreas of a brownish flesh-colour from venous congestion; the stomach and intestines to external appearance dark, but not internally congested or unhealthy, and the large intestines full of feculent matter; some fluid in the upper part, and gradually forming into masses till the rectum was full of scyballæ enveloped in mucus. Stomach contained a quantity of dark green thick fluid; the mucous membrane healthy. Mesenteric glands rather enlarged; the renal veins large,—renal capsules small. Kidneys firmer than natural if anything, and showing the texture of the cortical portion very distinctly from the injection of the portions between the secreting points, and looking not unlike a liver in its most incipient state of nutmeg degeneration, but perfectly smooth. Ureters rather small: bladder distended with urine, and not collapsing when emptied. Mucous membrane of bladder quite healthy, and not vascular. Arteries and veins natural.

On raising the calvaria, the dura mater was tense, as if distended with fluid, and on removing it the arachnoid came in sight, completely filled with serum, which passed also between the convolutions; the veins were turgid; the arachnoid very easily detached itself with the pia mater from the brain, and exposed the cortical part of a more lilac colour than natural, which became more of a rose-colour or pink after a few moments exposure to the atmosphere. The substance of the brain was flabby, but not softened; and most manifestly and strikingly gorged with blood, rendering its general colour dusky, and producing numerous spots and blots of blood upon the cut surface. The ventricles contained more fluid than usual; the choroid plexus quite pale. The bases of the brain and the cerebellum were bathed in a quantity of serum.

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The morbid appearances in these three cases of Diabetes throw little positive light upon the nature of this obscure disease. In each of them the kidneys appeared healthy; or if anything could be observed respecting those organs, it was that they were slightly gorged with blood,—and this corresponds with the observation I have made in several other dissections which now lie before me. The kidney was likewise firm in texture. I have however other cases where this was not the fact, but in which the kidney is said to have been flabby.

In general, but not always, both in these cases and others, the mucous membrane of the stomach and bowels appears deranged; and this may often be inferred from the character of the dejections—the bowels sometimes appear inflamed and ulcerated or irritated and irregularly contracted, even to the production of intusussception. The mesenteric glands are also occasionally enlarged, but this is more frequently the case when phthisis accompanies the diabetes. The liver is generally healthy in a remarkable degree; the utmost expression which I find in any of my dissections is that it was gorged with blood. Sometimes the pancreas has given evidence of congestion, and in one case, when icterus was combined with diabetes, the pancreas was the seat of extensive scirrhus degeneration. I never saw the spleen otherwise than healthy. With regard to the lungs, we very often find them involved in serious disease, sometimes showing evidence of phthisis more or less confirmed, and very frequently displaying the most unequivocal marks of inflammation, either of the pleura or of the substance of the organ; there are however quite sufficient cases in which the lungs are entirely free from disease, to leave no doubt that the pulmonary disease is but a secondary or a casual affection, and by no means necessarily connected with diabetes. In three of the cases now before me, the lungs were entirely free from all appreciable derangement.

The heart has generally been free from disease.

In all the cases in which I have examined the head, decided morbid appearances have been found,—well marked, even abundant, serous effusion with remarkable vascular congestion, and apparently a diminution in the substance of the brain, which has been far less firm and consistent than in health, though not in that state which is technically called “softening.” It would be absurd to deduce, from appearances like these, any conclusions in favour of the probability of the dependence of diabetes on the brain; yet in the absence of all evidence which would lead us necessarily to refer

it to the morbid condition of any other organ, we may be allowed to view it as not impossible that future investigations may afford proofs of a more direct connection than is generally supposed, between the morbid action of the kidneys in diabetes and a defective or perverted function of the brain and nervous system. We know that direct injury to the brain will pervert the functions of the stomach and other organs, when that injury is not sufficient to destroy their action altogether; we even know that the secretion of the kidneys becomes changed when injuries are inflicted on the spine, and that under the irritation of the hysteric paroxysm the qualities of the urine are greatly altered: all these serve as distant and slight analogies; but they carry us no further in the research, and we must never lose sight of the high probability, that, if from any cause the kidneys were greatly perverted in their action, the brain would be secondarily affected. Of this connection we have the strongest evidence in that somewhat rare form of disease *ischuria renalis*, for when the kidneys once cease to secrete, the patient shortly falls into a state of apoplexy and dies. But it is not only the complete suppression of the urinary secretion which occasions cerebral symptoms; the same, variously modified, are found to attend on diseases which pervert the qualities of the secretion; such, for instance, as the renal affections, indicated by albuminous urine and diabetes, of both of which I have been able to present illustrative examples; and that such derangements in the natural secretions and excretions should greatly influence the brain, ceases to be a matter of astonishment, when we find that the blood of those who have albuminous urine is often highly impregnated with urea, while it is deficient in its due proportion of albumen, and when we know that the blood of the diabetic patient undergoes decided changes. Although the alterations effected in the blood by the kidneys are perhaps the most important and complicated, yet if other organs have their actions perverted or their power of excretion prevented, the brain will suffer; as an instance of which I have already referred to some of the morbid phenomena attendant upon jaundice, in which the blood is not unfrequently deeply impregnated with bile and yellow serum effused beneath the arachnoid.

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In the foregoing cases of Serous Effusion we have an opportunity of tracing several of the different circumstances under which this morbid affection takes place within the cranium, independently of inflammatory action.

These circumstances, for the most part, are immediately and obviously connected with a state of congestion, from causes which either act to a certain degree mechanically, or produce a state of debility which favours the irregular accumulation of blood. In the first case (Case CIII.) direct mechanical pressure was applied; and if, as we suppose, the effusion depended upon the congestion arising from the ligature, the effect must have been produced very speedily. This however accords with what we have reason to believe occurs occasionally in disease, where, from the rapid appearance of symptoms, effusion seems to have taken place within a very few hours before death. Some facts have been recorded by Dr. Kellie which show that causes producing cerebral congestion are calculated to bring on very speedy serous effusion: he has related the cases of two individuals who were found dead from a night's exposure to cold, where serous effusion had taken place to a considerable extent, both in the ventricles and beneath the arachnoid\*. The well-known effect of cold in producing a state of unconquerable drowsiness, is satisfactorily explained, if any such elucidation were requisite, by these two cases; for excessive venous congestion was found accompanying this effusion, and it is this state of congestion no doubt which brings on the lethargic slumber, and terminates in effusion, or not, according probably to the previous condition of the sufferer.

The five cases (Case CIV. CV. CVI. CVII. CVIII.) in which symptoms of cerebral congestion depended on inhaling fumes from coal and from the brick-kiln, afford further examples of the same tendency to serous effusion when the circulation through the brain is obstructed; for in the two cases where death unfortunately gave us an opportunity of investigating the state of the brain, serous effusion had actually taken place; in most of the others there is reason to believe that the morbid affection proceeded no further than the state of congestion, though it is not impossible, from the slow recovery in Case CVII., that effusion had actually taken place to a small extent.

We have likewise, amongst the cases of serous effusion, an example in which the congestion depended on the circulation being obstructed in the heart (Case CIX.), a circumstance which is by no means uncommon; there are others in which bronchitis and phthisis, by permitting the natural flow of blood through the lungs, have produced such a condition in

\* Trans. of Med. Chir. Society of Edinburgh, vol. i.

the vessels of the brain as has led to serous effusion: frequently, indeed, as we have before seen, these same causes of obstruction produce only venous congestion, a difference which depends upon the previous condition of the body. In some cases simple debility is perhaps capable of producing this effect, of which phthisis and diabetes seem occasionally to afford examples; though in both of these, other causes are brought into action, besides debility, in a manner likely to favour the effusion. We have sometimes less questionable examples of this cause of serous effusion, afforded in hæmorrhagic diseases and in the exsanguine constitutions of anasarcaous patients, though in a great majority of these cases decided affections of the kidney (Case CXII. CXIII. CXIV. CXV.), or of some other important organ, as the spleen, serve to throw doubt upon the extent to which debility should be considered the prevailing cause of the effusion.

## CASES

### ILLUSTRATING THE OCCURRENCE OF PRESSURE FROM EFFUSION OF BLOOD WITHIN THE CRANIUM.

IN the arrangement of the following Cases I have endeavoured, in the first place, to bring together those in which the effusion of blood has been found upon the surface of the brain. I have then detailed the circumstances of such as have died from the effusion of blood within the substance; relating the dissections in order, according to the length of time which the patient has survived after the rupture has apparently taken place: and I have then stated a few cases in which complete or partial restoration has been obtained.

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The following case I shall relate in the words of Mr. Streeter, in whose practice it occurred, and who gave me the diseased vessel as soon as it was removed.

#### CASE CXXV.

*Apoplexy from Effusion on the surface of the Brain, owing to the Bursting of a small Aneurism.*

“ON the 30th November 1827 I was requested to visit — Collyer, living at No. 20 Short's Gardens. I found him lying on the bed, insensible; the breathing slightly stertorous. His mother stated that he had complained of being unwell, and while sitting on the chamber utensil he suddenly exclaimed, ‘Oh my head!’ laying his head on the bed; and had remained from that time in the state I then saw him. On feeling the pulse it was jerking, contracted, and labouring, and the skin moderately warm. Conceiving the attack to be apoplectic, I at once opened a vein in the arm; but scarcely had two ounces of blood flowed from a rather small orifice, before he became cold, the pulse at the wrist fluttering under the finger and very small; I therefore bound up the arm directly. This state of pulse and chilliness continuing, seemed to indicate the use of stimulants. A few tea-spoonfuls of vinegar were poured down the throat, and brandy substituted as soon as it could be procured, and also a few drops of the compound spirit of ammonia, which excited cough, and in some degree appeared as if it was about to rouse him. Cloths dipped in hot water were at the same time applied to the pit of the stomach; but the head feeling hot and the carotids throbbing violently in the neck, cold cloths were dashed on the temples and forehead with a sudden jerk. (It may be right to say I used this method as a substitute for cold affusion, wishing to obtain the influence of its sudden application without wetting the bed.) The heat of

the scalp, the throbbing of the carotids, and the insensibility still remaining,—without scarifying the skin, I placed two cupping-glasses at the back of the neck; these producing no mitigation, I ventured to scarify one, and drew away about one ounce of blood, watching the effect on the pulse. Finding it becoming depressed, I abstained from abstracting more: the pupil of the eye contracted on the approach of a candle. At the end of one hour, seeing there was some frothing at the mouth, I began to consider whether I had not been treating a case of epilepsy rather too much like one of apoplexy, and therefore directed some calomel to be smeared on the tongue, and those external measures which appeared best calculated to equalize the circulation and draw off the blood from the head. On visiting him at five P.M. I found he had recovered his sensibility, spoke languidly, and was in a gentle perspiration; complained of some, but not very severe, pain in the head, and felt very giddy: the bowels had not acted. I ordered glysters, and a large blister to the back of the neck. During the night he had two slight returns of the fit. Calomel and scammony were given in the morning, and acting on the bowels, produced decided relief. The glysters and powders were repeated as occasion seemed to require, and he appeared gradually improving during the week, till the afternoon of the 8th of December, when he experienced a return of considerable pain in the head. At two the next morning the insensibility returned, and he remained in that state till he expired at eight o'clock."

#### SECTIO CADAVERIS.

"Although his age was nineteen, his body was so diminutive that he resembled a boy of ten or twelve. Dissection disclosed an effusion of blood to the extent of at least eight ounces over the left hemisphere of the brain: this on closer examination was found to have proceeded from the bursting of an aneurismal sac, about the size of a large pea or small horse-bean, situated on the left side of the hemisphere, much about where the anterior and middle lobes join. When cut into, a clot was found which nearly closed the aperture; it appeared to have been connected with one of the smaller ramifications of the middle cerebral artery, but the connection was destroyed before its exact nature was made out. (Plate XIX. Fig. 3.) There was rather more water than natural in the ventricles. The chest was very much contracted; the lungs exceedingly small; the heart considerably enlarged. Two yellow masses were found in the spleen, in the region of which he had long complained of occasional severe pain."—These appearances in the spleen were precisely the same with those described at pages 16 and 123 in the former volume of this work, as probably arising from the previous effusion or blood.



## CASE CXXVI.

*Apoplexy with Effusion of Blood upon the surface of the Brain.*

IN the month of May 1827, a lady advanced in years suffered a sudden attack of apoplexy, with great pain in the top of the head, descending down the back of the head and the spine, which was effectually relieved by bleeding, so that in two or three days nothing but slight headache remained, without any paralysis.

Saturday, February 2nd, 1828, about nine o'clock in the morning, after dressing, she came into the drawing-room, sat down, and fell senseless to the ground. She was bled a few ounces immediately, and recovered a little so as to express most excessive pain by her moans and screams and the tossing of her limbs, but she was unable to articulate. A fresh attack was experienced about half an hour after, and she died.

## SECTIO CADAVERIS.

The substance of the brain was not ruptured, and no mark whatever could be traced of the former attack. There was no blood in the lateral ventricles, but there was some in the third ventricle, and effused over the surface of the brain and deep between the convolutions, particularly on the left side. The choroid plexus was pale, and it was believed that the rupture had taken place just where the vena magna Galeni joins with the lateral sinus; and near that part the chief coagulum of blood was situated.

## CASE CXXVII.

*Apoplexy with Effusion of Blood and Serum on the surface of the Brain, in consequence of a Fall.*

A GENTLEMAN, in an accidental fall had received a blow upon the back of his head, causing some external tenderness, but not sufficient to induce him to pay much attention to it. Several days afterwards he dined out, and the following day had company at home; the next morning he complained of pain in the head, particularly at the back part, and became very sick after his breakfast. The next day he found himself still unwell, though he did not vomit his breakfast as the day before. In the afternoon he sent for his medical attendant, who found that the scalp was still slightly tender where the blow had been received: he was suffering from frequent eructation, and his tongue was very foul. Pulse 72, calm. Medicines were prescribed to open the bowels and allay the irritation of the stomach. The following morning at eight o'clock, being the third morning since any alarming symptoms appeared, the medical man was sent for, on account of his having lost the use of his left side and nearly the



power of speech ; he became drowsy ; was bled freely, but died at six o'clock the same evening.

#### SECTIO CADAVERIS.

On the posterior part of the surface of the right hemisphere of the cerebrum a large quantity of blood was effused, which ran also between the convolutions. A considerable quantity of serum was effused on other parts of the brain, beneath the membranes, and into the spinal canal.

For the following interesting case I am indebted to Mr. Estlin, of Bristol.

#### CASE CXXVIII.

*Apoplexy from Effusion of Blood upon the surface of the Brain, in consequence of a Fall.*

"A— M—, Esq., aged 72, fell down while walking, on the 29th April 1829, having tripped against some wooden pegs placed on the grass ; he struck his face against one of the pegs, and bled freely at the nose. He got up immediately and walked home, about three quarters of a mile, calling upon me in his way. I was absent, but visited him twice at his own house in the course of the day. I examined him minutely ; could detect no injury but the bruise on the face, particularly on the nose, and there was no evidence of any internal mischief. As he had bled considerably I saw no occasion for taking more blood, but purged him, made him keep quiet, and apply a lotion to the face. In a few days he walked about again, did not appear ill, but complained of some degree of double vision. He continued walking about daily, ate and drank as usual, and attended to matters of business ; restrictions were laid on his diet, but he did not attend to them, and did not leave off his accustomed quantity of two or three glasses of wine.

"On the 11th of May (twelve days from the fall) he was met by his daughter, walking from his own house ; and on being asked whither he was going, said he was proceeding homeward,—and showed other marks of loss of judgment. I saw him soon after his return, and found him in a confused state of mind, with some incoherence. He occasionally fell off into a sort of doze ; and asked if I had been sent for, and had returned any answer ? at the time I was sitting by him. He frequently took up a book and appeared to read ; he complained of his head, but did not express any sense of severe pain. He walked with difficulty up to bed (two stories) : I bled him, and purged him freely ; the bowels were much loaded, and were torpid. On the following day some paralysis of the limbs appeared, and rather violent spasms of the face, particularly of the muscles of the lower jaw and neck, coming on in paroxysms, and lasting for a minute : his speech became very inarticulate, and he dozed a great deal.

The symptoms daily increased. He was blistered, leeches, &c. When asked if in pain, he always said No; and seemed when thoroughly awake, conscious of what was said to him. His pulse was not quick or unsteady, and the pupils were not in any respect dilated. He died on the 18th of May."

#### SECTIO CADAVERIS.

"On sawing through the cranium there was a copious bleeding on the right side and the anterior part of the skull. When the upper part was removed, much coagulated blood appeared beneath the dura mater, which extended from the upper and anterior part to the base of the middle lobe on the right side, and invested the origin of the fifth pair of nerves. No injury whatever could be discovered upon any part of the bone. I rather expected the ethmoid bone might have been injured, but it was perfectly sound. I could not ascertain the source of the bleeding: my impression was, that the hæmorrhage had been gradual, the symptoms increasing as the blood became extravasated. The coating of coagulum on the surface of the middle lobe of the brain was considerable."

No other organ showed disease."

#### CASE CXXIX.

*Partial Hemiplegia from Effusion of Blood between the Dura Mater and the Arachnoid, connected with remarkable slowness of circulation and enlarged heart.*

THOMAS KEEN, a tall large-made man, aged 45, a cooper by trade and somewhat intemperate, was admitted under my care into Guy's Hospital, August 27, 1828. He had already been under my care in the preceding August, suffering with rheumatic gout; and although this complaint had recurred at intervals, both before and since, his chief attention was now directed to fits of an epileptic character to which he had been subject since the month of March last. It appeared from his account that in the winter, about two years and nine months ago, he awoke in the morning with a paralytic affection of the right side of the face, and had ever since been subject to returns of giddiness, and had suffered much from oppression about the chest, particularly upon walking up stairs. About eighteen months ago, while stooping at his work a pain suddenly seized him, running from the pit of his stomach towards his head: he became giddy, had a severe pain down his arms, and was laid up with the pain for a fortnight. It was after this occurrence that he first came under my care; and subsequently left the Hospital, complaining only of occasional pain at the pit of the stomach, and a peculiar fluttering sensation about the heart. The first fit of a more decidedly epileptic character occurred about six months before his present admission: fits had since

returned at various intervals—at one time twice or thrice in the day. He had been twice bled to sixteen ounces; and though the first bleeding seemed to do him good, yet since the last the attacks had increased in frequency. One of the most remarkable features in his complaint was the state of the pulse, which, though somewhat irregular, was not so generally, and seldom rose to above 30 beats in the minute, and sometimes did not exceed 22. The pulsation of the heart was diffused but not strong, and it was observed that the pulsation was as distinctly felt at the instep as at the wrist. He frequently complained of difficulty of breathing, from a peculiar tightness at the chest; had most uneasy feelings when he stooped his head, and frequently felt faint when he sat erect or when he dozed, and sometimes woke up suddenly with a most painful sense of oppression at the chest: he also complained of some difficulty of passing his urine, which he said he had experienced for five years; the urine was rather high-coloured, and slightly coagulable by heat; his mouth was drawn towards the left side, and when he spoke or was the least agitated, spasmodic twitchings of the face took place.

Sept. 30. He suffered a severe attack of gout in the left foot, which lasted a few days, and seemed to afford relief to his other complaints.

Oct. 17. Pulse 40; tongue clean: he has had no return of fits for above three weeks.

23. When he lies on his side in bed, palpitation of the heart is very apt to come on, followed by confusion in the head; and he consequently preserves, as much as possible, a semi-recumbent position during the night, which prevents such attacks.

27. Another attack of gout in the left foot.

Nov. 10. No return of the fits lately, but a little occasional headache and sickness.

21. I ordered a bougie to be passed into the urethra, at his particular request, as he entertained an idea that he laboured under stricture. The moment it was passed he was seized with universal convulsion, particularly of the hands and the muscles of the face; and the convulsion of the right hand continued for nearly twenty-four hours, and bore a very formidable aspect.

Dec. 3. He left the Hospital at his own desire, being relieved in many of his symptoms, though he suffered a severe epileptic fit the evening before he left the house; the paralytic state of the face remained just as at the time of his admission.

The remedies which had been used were necessarily varied according to circumstances. Colchicum in small doses, and purgatives, had much influence over the attacks of gout. Blisters and gentle tonics seemed to relieve the chest; and amongst other remedies a seton was placed in the neck, with a view of controlling the epileptic paroxysms: but as no doubt was entertained that organic disease and chronic enlargement of the heart existed, and that some permanent lesion had taken place in the head, nothing but palliative remedies could be thought of.

May 1829. He was again admitted into the Hospital, his general condition varying

very little. It appeared that since he left the house he had experienced several fits, two of which were very severe, lasting for three quarters of an hour. In his fits he loses his consciousness, and experiences dreadful oppression and pain at the chest. He speaks of a sensation of pricking in every part of his body, particularly the trunk, when he bends his head quickly forwards; and he says that he often feels as if one side of his head was conscious while the other is not: his pulse is generally about 32, and his respiration 28. He experienced several more or less severe attacks of gout while in the Hospital, but in other respects his condition was pretty uniformly the same; and as he thought he should be able to amuse himself with light occupations, he left the Hospital on Tuesday, Sept. 1st. On the following day he walked to the Hospital, in his usual state of health, to get a bottle of a mixture with a little subcarbonate of ammonia, which he had been taking for some time. On the 3rd he undertook in the morning to brew a little beer for a friend; and while in the act of taking a glass of spirits before he began, he uttered an exclamation, staggered, and died without a struggle.

#### SECTIO CADAVERIS.

Circumstances rendered it impossible to obtain an inspection till five days had elapsed, and then the body had gone into an advanced state of putrefaction; by the assistance of Mr. Peacock, however, I inspected it as narrowly as possible.

The brain was generally discoloured by commencing putrefaction, but retained a tolerable firmness. The upper part of the dura mater was natural, nor, as far as we could judge, was there any preternatural effusion of serum under the arachnoid or into the ventricles; the choroid plexus on each side natural. No clot or other organic lesion could be discovered in the substance of the cerebrum or of the cerebellum. No remarkable ossification of the vessels at the basis.

On raising the anterior lobes from the skull a very marked black appearance was observed on the inside of the dura mater, covering the bone on each side of the crista galli: it was evidently a carbonaceous deposit in the layer of arachnoid lining the dura mater, and was made up of a number of black points: this black colour increased greatly in intensity on all that part of the dura mater which lines the petrous portion of the temporal and the lower part of the parietal bones (Plate XXIV. Fig. 3.), and proceeded quite back to the tentorium, and was observed likewise on the dura mater of the occipital bone, almost to the foramen magnum; and although chiefly on the right side, passed over slightly to the left. There was also a very

small patch of the same black deposit, shaded off on all sides, under the left anterior lobe; the intensity of this colour varied, but was greatest near the petrous portion of the right temporal bone: a very slight stain of the same dark carbonaceous colour was traced on some parts of the surface of the brain, corresponding to the darker parts of the dura mater. This gray appearance was evidently not in the substance of the dura mater, but almost confined to the arachnoid which lines it, and could in some parts be peeled off, leaving the membrane nearly natural. The surface of the dura mater next to the bone was of a natural colour and appearance.

The heart was remarkably large, appearing to distend the pericardium; it was at least twice the natural size, and the parietes throughout very feeble and thin; but all the valves were healthy, and the heart contained no fibrin or coagululum, and very little blood. (See Mus. of Guy's Hospital.) There was one small patch of disease near the arch of the aorta, but the large vessels were in general healthy; though they were much stained with blood.

The other viscera appeared healthy, but had in some degree lost their usual characteristic colours by the changes of approaching decomposition; unfortunately the kidneys were not examined.

In this case, then, the heart was probably the primary source of disease; and not unlikely it was some spasm of that organ connected with the gouty diathesis which was the immediate cause of sudden death. The suddenness of dissolution when there was no organic lesion satisfactorily to account for the event, and some other circumstances attendant on this case, resembled very much those of the late deeply lamented Dr. Marcet;—he too had just recovered from an irregular attack of gout; his death was instantaneous, and no obvious cause was discovered after death which could be supposed to have acted more severely at that time than at any former period; and in another point, the unusual rapidity of decomposition, a great similarity existed.

The peculiar appearance of the dura mater was very interesting, as serving to prove that the injury sustained at the time of the paralytic seizure, three years and a half before, was an effusion of blood into the arachnoid of that part, and showing how far nature operates to remove such injuries: and although the heart, by the feebleness and distention of its parietes, was no doubt in a great degree instrumental in favouring the slowness of circulation so remarkable in this case; yet, as this patient first began to com-

plain of oppression at the chest at the time of the paralytic seizure, and as we have no evidence of the time when the slowness of pulse commenced, it is by no means improbable that the pressure experienced by the brain during the existence of the coagulum, and to a certain though very slight degree latterly, had some share in producing the retarded circulation.

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### CASE CXXX.

*Apoplexy from Effusion of Blood into the Ventricles;—fatal in twenty minutes.*

MR. N— aged 57, of a spare habit, a temperate liver, of an anxious disposition, subject to be frequently disturbed from his rest by professional engagements, had enjoyed good health up to the evening of the 1st of July 1830. Having been much fatigued during that day, he retired to rest about half-past ten, after having made a moderate supper. About half-past one he awoke with feelings of nausea; this was succeeded by several attempts to eject the contents of his stomach, and after vomiting he seemed relieved. Mrs. N— became alarmed by some noise that proceeded from his throat, and rang for assistance. His son immediately arose and found him in an apoplectic fit, nearly insensible, and breathing with extreme difficulty. Before medical assistance could be obtained, his breathing had become stertorous, his pulse much depressed, and in twenty minutes from the seizure he died.

### SECTIO CADAVERIS.

Examination of the body took place on the evening of the day on which he died. The membranes were turgid with dark-coloured blood, and the dura mater adhered very firmly to the bone. The substance of the hemispheres generally appeared to be healthy. On opening the lateral ventricles a large quantity of semifluid blood was found, distending the ventricles exceedingly, and raising up the velum interpositum from the thalami. The corpora striata appeared to be torn on their surface, or rather broken down to the depth of about the fifth of an inch, and beyond this torn part, where the substance seemed to be entire, small dark spots of ecchymosis were discernible. The velum interpositum was also rent in one part; and from the blood-vessels of this membrane the hæmorrhage might possibly have arisen. On separating the thalami, the commissura mollis was found torn through



by the distending force of the blood, which had found its way into the third ventricle, and thence into the fourth ventricle. The entire quantity of effused blood might amount to more than three ounces.

Mr. N—'s pulse had always been remarkable for its force, having, as he said a few days before his death, more resemblance to a horse's than to a human pulse. The heart appeared to be generally sound in its texture, with the exception of the aortic and mitral valves, which presented the appearance of slight deposit, but not to such extent as to interfere with their due function. The cavities were of their natural size, and the muscular parietes had the ordinary appearance of healthy muscle. The coronary arteries were much enlarged; the aorta appeared healthy.

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With the particulars of this interesting case I have been furnished by my friend and colleague Mr. Key; and it shows in a striking manner the rapidity with which death takes place when blood is effused without restraint into the ventricles; marking at the same time the difference between such cases, and those still more instantaneous deaths which sometimes arise from rupture of the heart and large vessels, or the sudden suspension of the action on which circulation depends. With regard to the sickness which preceded the fatal apoplexy, I am inclined to consider it as rather a symptom of the cerebral derangement than as the cause of the rupture; at the same time it may in the first place have been the result of the congestion in the brain, and when produced, may have been the immediate cause of the bursting of the over-gorged vessels, and will serve as a caution against exciting severe vomiting where cerebral congestion is known to exist. With regard to the particular vessels from which the hæmorrhage proceeded some doubt may also be entertained, as it is certain that in many cases the vessels running on the membranes are the source of effused blood; and yet the appearance of ecchymosis in the substance of the brain would lead us to conceive that the vessels within the brain itself partook of the hæmorrhagic effort. In the former volume of this work (Case XIII. vol. i.) will be found a somewhat similar case, where the man survived about fourteen hours, in which the ecchymosis in the substance was still more marked, and in parts where it was evident that it could not depend on secondary injury from the effused blood. In the present case, however, the rapidity of the fatal issue countenances the belief that the blood might have flowed immediately into the ventricles.



## CASE CXXXI.

*Apoplexy, terminating fatally in an hour and a quarter, from Effusion of Blood near the Corpus striatum bursting its way through the Brain and the Arachnoid.*

THE Sister of Martha's Ward, aged about 37, a thin spare-made woman, about one month before her death complained of headache, and was very sick at stomach; this was allayed in a few hours by ordinary means; and she was never materially ill from that time till the last attack, of which she died.—It was however remembered that one day, about a fortnight before her death, she said she had a singular feeling in the head, with so much pain down her face that she was obliged to leave her occupation and lie down on her bed. And about a week after, she said she had felt such pain in her head and feverishness, that she was fearful she was about to have an attack of erysipelas; and the day previous to her death, while walking up the stairs with another woman, she suddenly cried out that she was giddy; but this went off immediately, and in the evening she was well and walking in the streets.

April 25th, at about ten o'clock in the morning, she was found lying senseless on the floor of her room, breathing rather stertorously; she was immediately bled to sixteen ounces, but without the least relief: occasional very slight spasmodic motions were observed in the legs and arms, but no other evidence of the power of motion. She lived in this state just one hour and a quarter, and died.

## SECTIO CADAVERIS.

When the calvaria was removed, it was obvious from the purple colour of the dura mater that blood was effused beneath that membrane; and on raising it; a small quantity of sanguinolent serum escaped, and a large clot of blood was found between the arachnoid lining the dura mater and that covering the brain. This was for the greater part upon the left side, but there was a little also on the right. The chief clot was over the left anterior lobe, and it adhered to the dura mater so as to be removed with it, and then displayed a large rent in the substance of the cerebrum in the front part of the anterior lobe; this rent was kept open by a clot of blood protruding from within, and by its side was an ecchymosis beneath the arachnoid extending into the fossa Sylvii. (Plate XXI. Fig. 1.) When a portion of the brain was removed laying open the clot, it was found that the superior part more particularly was surrounded by brain in a softened state almost like light yellow custard, as in the case of Sidney. (Case LXV.) This was about a quarter of an inch in thickness in some parts, and in it might be observed several small bloody points from ruptured

vessels ; on further examination it appeared that the effusion of blood had taken place on the outside of the left corpus striatum and close to its anterior part ; that it had broken through the brain anteriorly ; and that it had found its way into the lateral ventricle, which contained a considerable clot, descending into the posterior cornu ; and through the foramen of Monro it had passed into the right ventricle, where a small clot was seen attached to the orifice, projecting into the anterior part of the right ventricle, while the serum in this cavity was tinged with blood. The effused blood had found its way in diminished quantities to the surface of the other lobes, and into the base.

In the fossa Sylvii, near to where the rupture had occurred, the vessels were not healthy ; they had a peculiar yellow appearance, and the same was observable in the cortical portion of the brain itself at that part.

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Although the patient had suffered so little from previous illness, there is reason to believe that the rupture was the consequence of chronic disease in the brain. The yellow appearance, both of the vessels and of the cortical substance near to the part where the clot had been effused, must have been the result of some continued morbid action ; and had probably, as in the case of Kennedy (Case LXXXI.) led the way to softening of the brain and consequent rupture of the vessels. It is but seldom that we find such complete laceration of the brain and the arachnoid, and the copious and unrestrained effusion of blood upon the surface will sufficiently account for the rapidity and severity of the symptoms.

#### CASE CXXXII.

*Apoplexy from Effusion of Blood in the left Hemisphere finding its way into the Ventricle and the substance of the Medulla oblongata ;—fatal in ten hours.*

JOHN BUTCHER, aged 65, was admitted into Guy's Hospital, Nov. 6th, 1827, in a state of apoplexy. A man of stout make and short neck ; was formerly a soldier, but for the last fourteen years a porter in London ; has often drank freely of beer, but has not been in the habit of frequent intoxication. For several years lately, he has suffered from rheumatism, chiefly affecting the left leg, of which the knee is somewhat contracted. For the last four or five years he has been known to complain frequently of headache and once or twice of giddiness, but these symptoms have not been so severe as to oblige him to have any medical advice. He has been subject to a costive state of bowels.

He was brought to the Hospital about 11 o'clock A.M. having fallen down in the street about half an hour previously. At this time he was nearly insensible, and had lost the power of speech, though he made some efforts to express himself, and to put out his tongue when frequently desired. The right side was hemiplegic. Pulse 60, labouring. Mucus and saliva flowed from the mouth. The pupils of the eyes acted sluggishly. It appeared that he had not complained particularly of headache in the morning, but had left his home in apparently good health.

Mittatur Sanguis ad ℥iv statim.

Applicetur Embrocatio communis capiti raso, et Cataplasmata Sinapis pedibus.

Injiciatur Enema purgans statim.

During the venæsection there were occasional convulsive twitches of the upper and lower extremities. The pulse varied from 48 to 60: there was no improvement observable; no feculent matter followed the injection. The leg and arm on the left side were occasionally convulsed, and gradually lost all power of motion, and the breathing became stertorous. Fourteen ounces of blood were taken by cupping from the temples. A blister was applied to the neck, and three drops of the croton oil were administered: no benefit, however, was derived from the treatment. The bowels did not act, the pupils became contracted; and he died at half-past eight o'clock P.M.

#### SECTIO CADAVERIS.

No particular vascularity of the dura mater. Remarkably little fluid upon and under the arachnoid. The convolutions of the brain were much flattened and the sulci between them were little evident, giving the idea of considerable pressure from within, particularly on the left side, for a few of the convolutions of the right retained a rounded form. Pia mater not unusually adherent to the brain. Blood was thinly diffused over the whole surface of the cerebellum beneath its membranes, but there was nothing of the kind observable about the cerebrum, the tentorium forming the boundary, but it extended over the pons Varolii and upper part of the spinal cord. It had obviously made its escape from the fourth ventricle. Both lateral ventricles were found excessively distended with blood and sanguineous serum, and they communicated by means of an extensive rupture of the septum lucidum. The greater quantity of coagulum was found on the left side, on which the thalamus nervi optici was completely torn through and the substance of the brain in the neighbourhood lacerated, soft and ecchymosed. This state extended to a part of the corpus callosum. On the right side, the distention of the ventricle was about as great as on the left, but there was no laceration of the cerebral substance. There

were two small spots of extravasated blood in the corpus callosum on the right side, and several of much more considerable size in the pons Varolii; they were long, thin and parallel, and placed transversely, their disposition appearing to be influenced by the fibres which take this direction and which are continuous with the crus cerebelli ad pontem. (Plate XX. Fig. 1.) The arteries in the cranium were very healthy for the age of the patient, merely exhibiting one or two slight and very partial appearances of thickening. Both the pleuræ free from adhesion and effusion. Lungs universally crepitant, but rather loaded with blood and thickly sprinkled both internally and externally with spots of black pulmonary matter. Heart of rather large size, free from adhesion, but having a small and rather thick loose white spot near its apex; very little if any thickening of the muscular parietes. Both cavities, particularly the left ventricle, dilated. The valves exhibited nothing which seemed likely to have interfered with their operations.

A good deal of fat in the abdomen, but no trace of peritoneal inflammation, except adhesions in the neighbourhood of the spleen. The mucous membrane of the stomach generally pale, but presenting a few dusky streaks. Coats of the intestines thin; the mucous membrane healthy, and its glandular structure very little seen; the contents thin and rather yeasty. In the upper portion of the small intestines the mucous membrane of a leaden colour. Liver quite healthy: the spleen, which was very soft and small, had, besides the adhesion before mentioned, numerous small cartilaginous bodies on its surface. Kidneys quite healthy.

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The situation of the chief coagulum led to the conclusion that the first extravasation of blood in this case was in the left hemisphere, that it afterwards found its way into the ventricles, and broke down the septum lucidum. The course of the symptoms was also in accordance with this view: they first affected the right side; then the mischief became evidently general, and possibly the convulsion which occurred was connected with the peculiar injury done to the tuber annulare.

### CASE CXXXIII.

*Apoplexy, terminating fatally within twelve hours, from Effusion of Blood near the surface of the Brain.*

A—Y— was a robust man, of the middle stature, 45 years of age. He had in-

indulged freely in the use of ardent spirits and fermented liquors. For some years he had been the subject of severe and repeated attacks of rheumatic gout, and suffered frequently from violent cephalæa. Being a lighterman upon the Thames, he was much exposed to the vicissitudes of the weather, and to sudden transitions from heat to cold. His health for some months had been unusually good, though throughout the week previous to his fatal attack he had complained of severe pain in the fore part of the head. He had recourse, however, to no remedial measures; on the contrary, he had indulged freely in the use of spirits. On the day preceding the attack his stomach was irritable, and though he ate with an appetite, his food was again rejected, and he had violent and repeated retchings. He passed a tolerably good night, and rose as usual about six o'clock the next morning. Between seven and eight he was discovered in the water-closet in a fit, and described by those who found him as foaming at the mouth, and shaking violently. Mr. Robert Dunn (to whose kindness I am indebted for the particulars and an opportunity of seeing the diseased parts) was immediately sent for, but the fit had subsided before he arrived.

He found him labouring under symptoms indicative of pressure on the brain. He was sensible, but had no recollection of anything which had taken place that morning; he gave short and abrupt answers, and complained of pain about the forehead: his pulse was slow, full, oppressed, and labouring. He seemed lost, was restless, going from one part of the house to another; and wanting something he knew not what. Twenty ounces of blood were taken from the arm, and some opening medicine administered; he appeared to be relieved by the bleeding, and requested to lie down in bed. Between eleven and twelve o'clock he was seized with another fit, but Mr. Dunn had not an opportunity of seeing him during its continuance. The symptoms of compression being now more manifest, he was cupped to sixteen ounces from the nape of the neck; the hair was removed from the head, and an evaporating lotion applied to the scalp. After the cupping he talked rationally, and his mental faculties seemed greatly restored; but in the course of an hour he had another fit, when Dr. Addison was called in. The bandage was removed from the arm, and a few ounces of blood were allowed to flow, while Dr. Addison noted the effects upon the pulse. A blister was applied to the nape of the neck, and an injection administered. He continued, however, to have a fit every half or three quarters of an hour, and expired in one of them on the same day, at seven o'clock P.M.

The fits resembled a good deal the convulsions of children, and the left side of the body was more particularly affected with strong convulsive motions. At their commencement he made an effort to turn over from the left side, raising the hand and arm, the mouth being at the same time drawn aside, accompanied with a deep groaning noise, and followed by violent convulsive motion, commencing on the left side, to which it was chiefly confined. This lasted for some minutes: when the violent agita-

tion had subsided, after making deep inspirations and sighs, he came gradually to himself again ; though after having had three or four of the fits, he never recovered to be sensible.

There was no paralysis, nor did the breathing become stertorous, until a short time before he died.

#### SECTIO CADAVERIS.

On examining the brain, with Dr. Addison, twenty-four hours after death, the vessels of the membranes were found turgid, and there was a slight effusion under the arachnoid. Separating the hemispheres and slicing down their substance, a clot of blood was found on the right side, in the cineritious substance about the junction of the anterior with the middle lobe. This, with a portion of the surrounding brain, was carefully removed. The substance of the brain presented more bloody spots than usual, but there was no effusion into the ventricles. The basilar and internal carotid arteries were diseased in structure, being in a great measure ossified.

In this case it arose as a matter of speculation what connection the strong convulsive action might have had with the situation of the cerebral lesion, which had taken place so unusually near to the surface, and even in the cortical substance of the brain. It is the case to which reference is made, when speaking on this subject, at page 46 of this volume. In many respects the fits bore a resemblance to those mingled epileptic and apoplectic attacks which seem to depend upon temporary turgescence of the vessels of the brain. (Case LXXXVI. and LXXXVII.) And it is very possible that such was the nature of the first attacks in the present case, and that in all such cases the cortical portion is greatly implicated. It has however been observed, that in many cases where severe convulsion has preceded death, the medullary portion of the brain has had a marbled appearance ; but I am inclined to think that this is only an evidence of considerable vascular congestion, and that it may be attended with convulsion or with coma, according to other circumstances in the condition of the nervous system. (Case XCIV. and C.)

#### CASE CXXXIV.

*Apoplexy, terminating fatally in twenty-six hours, from Blood effused into the substance of the Brain, finding its way into the Ventricles ;—incipient disease of the Vessels.*

J— H—, aged 20, had been for six or seven years subject to most excruciating head-



aches, recurring from time to time, and often lasting for twelve hours, then going off with sickness. The character of these headaches used to vary a little, and he was accustomed to distinguish between what he called his sick headaches and his throbbing headaches; a month or six weeks before his death, he mentioned to his cousin that he had numbness down his whole left side. Thirteen days before the attack which put a period to his life he had been running down a steep place, and had fallen on his head, and rolled over; he was taken up almost in a state of insensibility, and his face and forehead were much bruised; but nothing further than the temporary inconvenience seemed then to have resulted from the fall, and no remedial measures were thought necessary. On Wednesday 4th July (1827) he was supposed to be in perfect health, and was in good spirits; he dined moderately at half-past three o'clock in the City, and walked to Bedford-place, where he drank tea and ate a few strawberries. It was a little after ten o'clock when he left the party, and at twelve was brought home nearly senseless from the watchhouse. It appeared that the watchman had found him in the street,—as he at first supposed in a state of intoxication; but trying to raise him, found that he had entirely lost the use of his left side. He was able to state where he resided; but hoping it was only a temporary affection, begged the watchman not to give the alarm to his friends. But the watchman perceiving that he grew worse, and his face more distorted, conveyed him home. When he arrived there, he had just power enough to say, “Giddy—in street,” and was able to swallow a rhubarb draught. It then appeared that he had passed a large motion involuntarily on his way from where he was found. A medical man having been quickly sent for, he took away twenty ounces of blood from the arm, and afterwards about the same quantity by cupping from the neck and temples.

I first saw him about eleven o'clock the following morning, just twelve hours after the attack: he lay to all appearance senseless in bed, with his left hand, arm and leg motionless, while the right was continually agitated by convulsive action: the leg kicked forcibly, and the hand generally drawn across the body, constantly rubbing on the left side of the chest. His face was not at all distorted. When I spoke to him loud, and several times repeated the request that he would press my hand with his right hand, I thought he did so; and this was the only indication of intelligence I perceived. His pulse was below 100, and somewhat laboring: pupils rather contracted: urine passed unconsciously. We had the head shaved, cold washes were constantly applied, and strong cathartic glysters were given and repeated. I saw him again at two o'clock, when no particular change had taken place in his condition. At eight o'clock I again saw him; the convulsion of the right side had ceased: he lay with his legs quite motionless; his left hand had acquired a slight convulsive action, contracting irregularly, and it was drawn up to his body, the elbow being bent: his right hand still moved occasionally towards his head. Pulse 120, active: pupils dilated, and did not contract when a candle was brought near them;—he still seemed to shrink a little on the application of cold to the head. I ordered the temporal artery to be opened, and waited to mark the effect. It seemed to afford no relief; on the con-



trary the breathing became rather more laborious, and therefore when six ounces had been taken we stopped. As the injection had acted but little, another was ordered, and a blister applied to the nape of the neck. We saw him again at twelve o'clock; very little alteration had taken place, but the hands were rather more contracted: we learnt that his limbs were afterwards more agitated, and he died about half-past one o'clock, within twenty-six hours of his attack.

#### SECTIO CADAVERIS.

The head was well formed, the skull somewhat thin. The dura mater was rather vascular: a good many vessels appeared upon the arachnoid, but it was remarkably fine and thin, and there was no effusion; on the contrary the membrane seemed drier than usual. The convolutions of the brain were more flattened on both hemispheres than I have often observed which we of course ascribed to the pressure of blood effused within. On removing the upper part of the hemisphere so as to lay open the ventricles, we found that the left contained a large clot of dark-coloured blood of the size of a small hen's-egg, and the substance of the corpus striatum on this side was much broken down, so that it seemed the blood had first been effused into the substance of the brain, though the precise point could not be distinguished; and, on examining the clot of blood, it was evident that, besides one large clot which formed about two-thirds of the whole, there were several smaller clots, each of the size of a pea, separable from the mass, bearing the appearance of having come from separate vessels, and some small portions of brain were mingled with the clots; besides the clots, fluid blood, and serum coloured with blood, filled the whole of the ventricle and distended the cornua. The right ventricle was also distended with blood and bloody serum, so that it was larger than natural, but no laceration of the brain had taken place on that side. On examining the vessels of the base, we found the basilar artery decidedly diseased. A portion of the artery, to the length of the fourth or the sixth of an inch, was three times its natural thickness, and semicartilaginous round its whole calibre, so that it held itself with a circular open mouth, while the artery in other parts was collapsed and flat.

#### CASE CXXXV.

*Apoplexy from Effusion of Blood into the right hemisphere of the Cerebrum, terminating fatally in thirty-one hours. Arteries of the Brain diseased, and Kidneys granulated.*

JOHN BALDREY, aged 61, a stout man with rather a short neck, admitted under my

care into Lazarus Ward, August 16th, 1827. He was said to have been aloft on some part of a ship, at one o'clock to-day, and suddenly fell. It was difficult to get a clear account of him; but it appeared that his fall was broken by some men near him, and it was considered that the fall was not the cause of the subsequent insensibility. He was bled to about a pint. He was brought to the Hospital at seven this evening; was then sensible to questions, and complained of pain in his head: the left side paralysed.

Mittatur sanguis ad ℥xxiv, et habeat Pilul. Colocynth. cum Calomel. gr. xv statim.

Eleven o'clock.—Pain of head relieved by the bleeding.

Applicentur Cucurb. cruent. nuchæ, et detrahatur sanguis ad ℥xij.

Radatur Caput, et admoveatur Embrocatio communis. Injiciatur Enema purgans.

17th. Had three more pills this morning. Bowels freely moved: now sensible to questions, but his manner very torpid and dull; some stertor; says he has no pain in his head: left arm and leg paralysed, with some slight affection of the muscles of face: the left pupil somewhat more dilated than the right, and more fixed. Tongue foul: pulse 72, rather full and jerking: skin not hot. Four or five hours after this report I saw him again; his bowels had since then been freely moved, his pulse was not so full: rather more sensible; no stertorous breathing. To have a blister on each side, at the upper and anterior part of the chest; a common enema in the evening, if necessary.

18th. At twelve o'clock last night he had a severe fit bearing a good deal of the character of epilepsy. The right side was much convulsed, and the left slightly; his head was drawn to the right side. In two hours this subsided a little, but he remained nearly senseless. When seen at ten o'clock he was in a state of stupor, with some stertor, but not altogether insensible. The left pupil acted a little: pulse 96, rather forcible and jerking: the skin not very hot; feet pretty warm: he was sensible of his right leg being pinched, but not of his left. The blister had not risen: bowels open in the night. Ordered to be cupped at the back of the neck, and to have mustard poultices to the feet.

Half-past one, P.M. He now attempts to put out his tongue; denies having any pain by a simple negative: breathing stertorous: pulse 96; bowels freely open.

19th. He moaned a good deal during the night: pulse very compressible, and of inconsiderable volume; some mucous rattle; appears sinking. Died about eight o'clock.

#### SECTIO CADAVERIS.

Lungs with very well marked emphysema on the free edges. Heart large, and the left ventricle most unusually strong; the cavity rather small. The arch of the aorta diseased, with considerable thickening; the aorta uneven along its whole course, and just before the division into the iliacs the internal surface was broken, and a completely ulcerated surface of a dark appearance showed itself.

The carotids uneven, with cartilaginous deposits; the two vertebral arteries, before they form the basilar, diseased; the basilar itself diseased, and several of the small branches. (Plate XIX. Fig. 2.)

The brain seen on taking off the calvaria was flattened in its convolutions, but not so much as often observed. On cutting down nearly on a level with the corpus callosum, nothing was observed but a small portion apparently much softened in the centre of the middle lobe of the cerebrum, on the right side; this was the top of an apoplectic clot, which was situated in the middle lobe of the right side, and contained about an ounce of blood; this had not quite found its way into the ventricle, but had destroyed the thalamus, and was literally held from the ventricle only by the membrane lining that cavity.

The kidneys afforded a well marked specimen of the hardened granulated kidney. (Plate III. Fig. 1 & 2. vol. i.)

In the bladder not above a dram of urine could be found, and when most carefully taken it was very turbid: on application of heat it curdled completely; and when a portion was mixed with about 100 times its own quantity of distilled water and filtered quite clear, it became decidedly opalescent on exposure to heat. The spleen afforded a rather curious illustration of the mode in which the cartilage is often distributed in little lumps or granules on its surface. A little glandular tumor was attached to the lower end of the stomach, like a pancreas in structure. Intestines quite healthy.

#### CASE CXXXVI.

*Apoplexy from Blood effused into the anterior part of the right Hemisphere, finding its way into both ventricles;—terminating fatally on the sixth day.*

MARY AGNES was admitted into Guy's Hospital, February 4th, 1829, under the care of Dr. Back. She was said to be an elderly woman, but she did not look above 55; her teeth were quite perfect in front. The man who brought her said that he had been in the habit of seeing her daily, and she was not disabled in any of her limbs; he had however heard that she had formerly had a fit, but of what character we could not discover. This morning, at half-past seven, he went out and left the patient assisting in his house, lighting the fires: but when he came home in half an hour, he found that she had just been taken up senseless from the ground; she was breathing hard, but without convulsion. She was brought to Guy's, nothing having been done for her; and I saw her at about half-past twelve o'clock; at that time her countenance was pallid, and none of the features convulsed. She was lying flat and nearly

motionless on her back in bed, apparently quite insensible when spoken to, or her eyes opened, or her hands and legs moved. The right arm was bent over the chest, and the hand nearly closed and contracted with slight convulsive motion; the left hand was also somewhat in the same position, but less bent, and quiet, and yielding more easily to be straightened: legs flat and extended, and not convulsed, but motionless. Respiration from 28 to 32, with a kind of plaintive groan on expiration, which was more prolonged than the inspiration; and I observed, once or twice, that the buccinator muscle seemed to yield in a powerless way to the air in expiration. Pulse under 50, not quite regular. Pupils contracted, but not acted upon by the light of a candle; the right rather most contracted.

*Injiciatur Enema purgans statim.*

*Applicetur Emplast. Lyttæ nuchæ.*

*Sumat Hydrarg. Submur. gr. v. et Mist. Magnesizæ.*

Seven P.M. She has remained in the same state nearly all day; has shown no signs of consciousness, but has once or twice seemed to open her eyes a little: she has swallowed the pill, which was with some difficulty got into her mouth, and two spoonfuls of the mixture. Respiration just as before, perhaps with more noise; and the cheeks rather more moved by the passage of the air: her hands, particularly the right, rather more contracted, and agitated.

Feb. 5th. Aspect and appearance as yesterday, and she has scarcely altered in any respect, but there is rather less convulsive motion of the hands and fingers. She has swallowed two or three times. Dr. Back had seen her about an hour and a half before I did, and ordered her to be bled; she bore the loss of about ten ounces without any particular effect: the pulse was afterwards 100, rather sharp. I think her respiration a little more sonorous, approaching to stertor. In the evening a few leeches were applied to her temples.

6th. She has had some copious dejections; she lies much as yesterday, her legs quite straight out, feet rather extended, hands bent upon her chest. I understand that she seemed to assist herself and retain herself in a sitting posture while the barber took off her hair to allow the application of a blister to the scalp, which is now on; but she has not appeared to hear, see, or know anything; yet she appears conscious of my attempting, by pulling her chin, to make her put out her tongue. No drawing of the face.

8th. She has been lying almost precisely in the same state, has taken her medicine when raised, but has in no other way shown signs of consciousness: pulse above 120; respiration rather quick, and performed with an effort in the expiration like the noise made in straining to expel the fæces: the convulsive motion of the hands less. I saw her raised, and when the cup with medicine was applied to her lips, she drew them up by a strong action of the orbicularis, as in a natural effort to drink by sucking in the fluid; her deglutition was very difficult, and accompanied with a choking

noise: she also partially opened her eyes, and I thought attempted to make some kind of answer when I endeavoured to rouse her.

9th. When I saw her about one o'clock, a great change had taken place in her condition; she lay on her back apparently in a state of suffocation from a quantity of frothy mucus brought with a gurgling sound into her mouth; her hands and arms allowed of being bent with ease. I learnt that this change in her state had taken place about an hour and a half before, while attempting to swallow a cup of beef tea.

In the evening she gradually sank.

#### SECTIO CADAVERIS.

The dura mater, when the skull was removed, of unusual vascularity, covered with drops of blood externally. The lateral meningeal vessels, of large size, seen ramifying on the membrane. On removing the dura mater, no effusion of serum was found on the surface of the brain, which was quite as dry as usual. The convolutions were remarkably flattened in both hemispheres, but particularly the left, and the anterior part of that was the worst. On further examination it was found that a large clot of blood, not less than two ounces, had been effused into the anterior lobe of the right hemisphere of the cerebrum, where it formed a clot of considerable consistence. The walls of this were uneven, in some parts pretty solid, but in others broken down and ragged. In some parts there were numerous small brown points in the surrounding cerebral matter, like a cluster of petechiæ—the clot approached very near to the extent of the brain, on the anterior part, having nothing beyond it but a thin slip of the cineritious matter, and it almost filled the whole width of the hemisphere. (Plate XXII. Fig. 3.)

This had found its way just above the middle or anterior part of the corpus striatum into the right ventricle; this ventricle was filled with blood, and a solid clot was found in the posterior cornu; but besides this it had broken down the septum lucidum and spread into the left ventricle, which was also filled with bloody fluid, while its cornu contained a dark clot: the clot was most extensive in the right ventricle, but was of considerable size in the left. It had not found its way backwards into or under the cerebellum. (Plate XXII. Fig. 1.)

I removed the clot with much care, and found that one portion consisted of flocculent brain mixed with blood, but the cavity was greatly inclined to undergo a favourable change; the clot separated easily, and the surface was divided into slight elevations, between which small portions of vessels

were seen. On this surface issued many bloody points from the mouths of small vessels, and when pressure was made near the walls of the cavity these increased rapidly, but it did not appear to me that any opened completely on the surface; the blood appeared to be effused beneath a very thin membrane or only a surface of condensed brain. (Plate XXII. Fig. 2.) By the nature of the surface and the smoothness it presented, it seemed that already the process of forming a vascular cyst had commenced,—already that surface consisted of firmly compressed brain, with portions of vessels not actually ramifying on it as if by a new growth, but as if exposed by the removal of a portion of the brain, and gradual pressure; so that a kind of dissection was made till considerable vessels came to the surface,—thus possibly forming the early commencement of that beautiful vascular cyst found in the case of Morley, shortly to be related. (Plate XXV.)

Observing several of these vessels distended and varicose, owing to the removal of that restraint which the brain had before afforded, I carefully washed away a little more of the cerebral matter, and then, at not more than the fifteenth of an inch beneath the surface, brought into view a radiating bundle of large vessels running from the large vessels in the fossa Sylvii towards the outside of the corpus striatum.

On examining carefully the vessels of the brain, several spots of a cartilaginous hardness were discoverable, and the membrane formed by the pia mater and the arachnoid was most unusually thick about the fossa Sylvii, forming a membrane as firm nearly as the pleura.

### CASE CXXXVII.

*Apoplexy with Hemiplegia of the right Side from Effusion of Blood into the left Hemisphere near the Corpus striatum, followed by general serous Effusion beneath the Dura Mater;—fatal in ten days.*

— — — was admitted into Guy's Hospital, labouring under hemiplegia of the right side, and great difficulty of articulation, and drowsiness, with some stertor. His complaint had come upon him suddenly about five days before, and his stupor at that time had been more profound. After he had been in the Hospital three days, recovering a little, but imperfectly, he became decidedly and rather suddenly worse, his insensibility and stertor continually increased, and in about forty hours he expired.



## SECTIO CADAVERIS.

Head well shaped, rather high forehead, thinly covered with gray hair; body stout and large in proportion to his limbs, and covered with hair. Great accumulation of fat in the integuments of the abdomen; unusual quantity of fat on the omentum and amongst the intestines, so that the spleen could scarcely be brought to view for the quantity of fat in which it was enveloped. Liver quite healthy in structure, but the left lobe most singularly small, and the bile in the gall-bladder very fluid, and of unusual colour. The pericardium and the mediastinum loaded with fat; and the heart, which was rather large, was likewise greatly encumbered with it. The heart with its valves and the aorta quite healthy, except at the base of one of the semilunar valves of the aorta, where a cartilaginous conversion of some consistence and thickness was taking place: apparently, however, the valves acted well.

The vertex of the cranium showed externally on each side of the sagittal suture two projections, making four in number, sufficient to excite observation, though not considerable; they looked dark-coloured as if from a certain degree of transparency, and on removing the skull were found to be very thin, owing to deep fossæ made by the inequalities of the longitudinal sinus. These appeared rather as original conformation. On removing the dura mater the convolutions of the brain appeared flattened, and on passing the finger over the pia mater the convolutions were scarcely felt, which was partly on account of the effusion of serum beneath that membrane forming in some parts bladders, each containing nearly a dessert spoonful of limpid serum. There was no particular mark of congestion either in the veins or arteries. A large clot of blood of a grumous coffee-colour was found occupying nearly the centre of the left hemisphere of the brain. The blood had not found its way into the lateral ventricle, but it had compressed it so as greatly to diminish its extent. The clot of blood occupied the situation of the corpus striatum chiefly, and showed a tendency to separate from the sides of the cell it had made.

In this case it appears probable that the effusion of blood occurred at the time of the first attack, and that the aggravation of the symptoms which took place forty hours before death was in consequence of the extensive serous effusion. The situation of the sanguineous effusion was that



which is most common, and the walls of the cyst seemed condensed, and the broken surface smoothed down—probably the first marked step in the progress of such changes.

### CASE CXXXVIII.

*Apoplexy, with Hemiplegia of the left side, from Effusion of Blood into the right Hemisphere;—fatal after twelve days.*

ROBERT WARDLESS, a porter, aged 58, was admitted into Guy's Hospital, March 25th 1829. He had been seized suddenly the day before, while in the street driving a cart, with hemiplegia of the left side. He was immediately bled very copiously, but did not recover any of the lost power. At the time of his admission, the loss of motion in the left side was almost complete; and he had no sensation in these parts—this defect extended from the tip of the finger to the shoulder, and over the whole lower extremity; his head was turned quite to the right shoulder, and his eyes were also turned in the same direction. He was however able, with great effort, to turn the head and eyes partially to the left. The left corner of his mouth was drawn down.

Radatur caput, et applicetur Embrocatio communis.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥ij.  
Habeat Misturam Magnesiæ cum Magnesîæ Sulphate.

26th. Pulse 92, rather sharp: tongue brown and furred: he complains of some pain in the forehead; the sphincters act very imperfectly, so that he has passed two stools in bed; but his intellects are quite clear, and he replies to questions with remarkable readiness and quickness.

27th. He has had no sound sleep, but as soon as he falls asleep talks incoherently. He has complained much of pain in the affected limbs, and more particularly the thigh; there is not the slightest power of motion in the left arm, and he can make no effort to close his fingers; does not feel any one touching or pinching his hand or arm as far as the shoulder. Bowels open, but stools passed in bed.

Repetantur Medicamenta.

28th. Restless and frequently talking; his mouth is less drawn, but in other respects no change.

Habeat Olei Ricini ℥ss statim.

30th. He remains much the same, but appears to be losing power.

Infus. Gentian. Comp. cum Sodæ Subcarbon.

April 2nd. Yesterday he appeared so much better, that he sat up, with much assistance, in his chair, and to-day when his bed was made: but he is obviously more

drowsy, though capable of putting out his tongue, which is moist; and he is able to answer questions distinctly. He complains of pain over his whole body; the left eyelid is not raised perfectly; pulse 120; head drawn to the right: he lies in rather a torpid state, but is sensible when roused.

*Applicentur Cucurbitulæ cruentæ pone aures, et Emplast. Cantharidis occipiti.*

3rd. Passes every thing involuntarily; complains of pain in the left thigh, but none in the head. Has become gradually more comatose; but is capable of answering distinctly when roused: pulse 105.

He gradually sunk, growing weaker and less sensible, and died on the 5th.

### SECTIO CADAVERIS.

No remarkable appearance of the dura mater. The arachnoid raised by serous effusion over the whole surface, and sinking into the convolutions, so as to prevent their being flattened, and to lead to a doubt whether a bloody effusion would be found; but on removing a thin slice, the clot was opened, which contained about an ounce and a half of dark grumous blood, not bounded by any cyst, but mixing with the substance of the brain, which all around, for the extent of a quarter of an inch, was of a fawn colour or brown red, from the percolation of blood; and this was quite softened down, the colour imperceptibly fading into the natural colour of the brain. (Plate XXIII. Fig. 1.)

In the posterior cornu of the right ventricle was a small clot of blood, and a small quantity of bloody serum filled the other part; this blood had found its way into the ventricle by a rupture just above the optic thalamus, and the thalamus itself was, at its posterior part, soft and discoloured like the parts of the brain surrounding the clot. The septum lucidum was entire, but sufficient blood had escaped through the foramen to colour the serum in the left ventricle, though no clot had formed. In the left corpus striatum, when cut into perpendicularly, there was what appeared a softening of the substance, of the size of a pea, but this was not a very decided morbid appearance. The vessels at the basis were much ossified, and patches of the same kind in the arteries running over the corpus callosum, and those passing up the fossa Sylvii—from some branches of which probably the rupture had taken place. The aorta, both ascending and descending, was most extensively ossified, with bony granulations; the

coronary vessels of the heart ossified in a very high degree, forming bony canals : some œdema and emphysema in the lungs. Kidneys a little white ; urine in the bladder coagulable. Other viscera healthy.

In this case it appears probable that the lesion of the brain took place rather from the rupture of some considerable branch of the artery, than from a simultaneous rupture of many vessels ; for there was no appearance of small round specks of ecchymosis as in some other cases, but the substance was softened apparently by the pressure of the clot and percolation of the blood, which probably did not increase after the first attack. It would appear that the rupture was sudden, that the bleeding from the arm put a stop to the effusion of blood, but that the violence done to the brain was so great, or the disease of the vessels and of the heart so considerable, that no process of repair was set up in any part of the cavity, and gradually the softening and disorganization extended into the ventricles ; into which, however, very little blood escaped, as the greater part was coagulated in the large cavity before the opening into the ventricle was formed. In the progress of the symptoms there was nothing to mark any sudden or considerable renewed effusion of blood ; and as the powers of life receded, the slight effusion of serum on the surface of the brain took place much in the same way that it occurs in phthisis, or other diseases attended by great debility, and this increased the tendency to coma.

It was somewhat remarkable, that until death approached, the intellect should have remained unclouded. But from the appearances on examination it was evident that the upper part of the brain had not been greatly compressed, for the convolutions preserved their natural figure.

#### CASE CXXXIX.

*Apoplexy, Hemiplegia, Effusion of Blood in the Optic Thalamus, terminating fatally with Serous effusion in three weeks ;—vessels extensively diseased.*

CATHERINE DAVEY, aged 63, was admitted into Guy's Hospital, July 22nd 1829, in a state of complete hemiplegia of the right side, with loss of speech ; the mouth much drawn. We cannot ascertain from her husband that she had been in the habit of suffering from headache or giddiness, or had any previous attack ; but about three weeks ago she suddenly fell senseless while sitting in the passage of her house, and

on coming to herself was found in the state in which she now is—except that she has recovered a little, and a large slough has formed on the nates.

*Abradatur Capillitium.*

*Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥xij.*

*Habeat Pil. Colocynth. cum Calomel. gr. xv statim.*

*Enema purgans si opus fuerit. Mist. Magnes. cum Magnes. Sulph.*

*Julep. Menth. cum Mist. Camph. part. æqual.*

She gradually improved; so that her articulation returned to a degree quite sufficient to express herself; and she was remarkably cheerful: the right side, however, remained quite paralytic, both the arm and the leg.

August 21st. A great change was observed this morning, as if she had suffered a fresh attack. She lay on her back quite senseless—the power of articulation gone, and the face flushed.

*Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥x.*

*Applicentur Emplast. Cantharidis pone aures.*

22nd. She has appeared to wander, though she has spoken intelligibly. Bowels much relaxed.

*Enema Amyli cum Tinct. Opii ℥xxx statim.*

23rd. Pulse 120, small; skin warm: no stool. She is less senseless in her appearance, but cannot speak. In the evening she quietly sunk.

#### SECTIO CADAVERIS.

Removing the calvaria, the dura mater appeared much loaded with blood; and when it was taken off, the arachnoid was seen thickened and slightly opaque, containing a quantity of serum, so great, between the convolutions as to compress them and render them unusually narrow and rounded; this was the case on both sides equally, and in no part could any flattening of the convolutions be perceived. Drawing the two hemispheres asunder, the larger branches of the arteries running along the corpus callosum were found to be in an extremely diseased state, spotted in every part with yellow cartilaginous patches. The arachnoid and dura mater together stripped easily off the hemispheres, and in all the larger branches of the vessels ramifying upon the surface the same tendency to disease was observable.

Removing the hemispheres by successive slices, no disease was to be perceived, and no unusual congestion, though a good many vessels drew out like small threads after the knife. The right ventricle was quite natu-

ral, but the serum it contained seemed very slightly turbid; the corpus striatum and optic thalamus were quite healthy; the septum lucidum perfect, and the choroid plexus natural. On the left side, however, the serum in the ventricle was decidedly turbid; the optic thalamus was completely diseased, soft, and of a yellow colour, with many vessels upon it. The corpus striatum quite natural, except a small part of its posterior small extremity which was softened by the contiguous disease. (See Plate XXIII. Fig. 2.)

About half an inch from the corpus striatum, and quite in the medullary substance, was a cavity of the size of a small nutmeg, lined by a yellow brown membrane evidently vascular, but containing little or no fluid, so that the sides appeared to be coalescing, and had indeed adhered at the bottom. A small band of the membrane, with a vessel running along it, was seen passing from side to side. (Plate XXIII. Fig. 2. g.) When a section was made so as to divide obliquely and perpendicularly the optic thalamus, a brown clot of grumous blood was found surrounded by a distinct yellow membranous cyst, so strong as to allow the blood to be scraped out and to be afterwards removed unbroken from the brain; that part of the optic thalamus, however, which was in immediate contact, was softened and discoloured. (See Plate XXIII. Fig. 3.)

The base of the brain presented no other morbid appearance except that of the vessels; the basilar, vertebral, and carotid being all diseased. The large vessels of the body, particularly the aorta and the trunks arising from the arch, as well as the iliacs, were all highly diseased; and about the arch large plates of bony matter lay between the coats.

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In this case it is not easy to ascribe the date to the apoplectic cyst observed in the medullary matter on the outside of the corpus striatum; it was however evidently prior to that found in the optic thalamus, with which it had no communication. The membrane which surrounded it was completely organized, and all the blood was absorbed, and adhesions were forming between the opposite sides of the cyst, and would possibly in time have caused its complete obliteration. The apoplectic cyst in the optic thalamus was in all probability the consequence of the rupture of a vessel which occurred about seven weeks before the death of the patient, and gave rise to the hemiplegic symptoms for which she was admitted. The cyst was in this case completely formed, though its vascularity was very indistinctly to be traced. The change which took place three days previous to her death,

probably depended upon the serous effusion, which was very abundant beneath the arachnoid.

### CASE CXL.

*Hemiplegia;—death after twenty-three days. Effusion of Blood into the right Hemisphere.*

JOHN PUGH, aged 29, was admitted into Guy's Hospital Jan. 20th 1830, the subject of hemiplegia of the left side. He was a hatter by trade, a well-made man, of middle stature, but in the habit of getting intoxicated in the evenings, and complained frequently of deranged stomach.

On New Year's day, as he was sitting at dinner, his knife and fork fell from his grasp, and a piece of bread which he held in his hand dropped on the ground: he rose from his chair, staggered to the door, and fell senseless. In a few minutes he recovered; but he had completely lost the power of his left side, and the sensation was greatly impaired. He was bled to twenty ounces; and when seen twelve hours after was in a state of great collapse: he was afterwards freely purged, and cupped from the nape of the neck, and blistered; but he never recovered in any considerable degree the power of motion, remaining in a weak and rather imbecile state, occasionally wandering in mind, and speaking so imperfectly as to be scarcely intelligible. At the time of admission he had not recovered the least power of his left arm or leg, his face was slightly drawn to the right side. The urine was passed unconsciously, sloughs had taken place on the projecting parts of the hips and sacrum, and an erythematous inflammation with slight œdema was observed in the right leg. He was in a very exhausted condition, and was evidently sinking: his pulse 120; his mind weak and wandering; his articulation very imperfect, and he lived only three days.

### SECTIO CADAVERIS.

The skull rather hard and thick; a few very small opaque spots upon the dura mater, and a few of the same kind on the arachnoid; slight serous effusion under the arachnoid: the convolutions in the right side a little flattened. The substance of the brain perfectly healthy, and very firm; the corpus callosum was not elevated. When the superior portion of the hemispheres was sliced off nearly to a level with the ventricles, fluctuation became evident in the substance of the brain on the right side; and then a cavity was discovered containing an ichorous fluid and a round clot of blood of a chocolate colour: this extended close to the ventricle at the posterior part, but did not enter it; the fluid in the ventricles, which was by no means more than natural, being quite limpid. The corpus striatum and the optic thalamus were scarcely involved. The clot was in most parts



easily detached from the cavity in which it lay, though towards the bottom it was a little mingled with the lacerated cerebral substance ; in most parts the walls of the cavity were tolerably smooth, and upon them vessels might be distinctly seen ramifying as on the surface of a membrane ; while in one or two parts large vessels were seen completely detached from the brain, and running across small portions of the cavity in such a way as to admit of a probe being passed beneath them. Where the parietes of the cavity were most irregular, the small portions of brain stained with blood were easily detached like brown flakes from the more firm substance of the brain by the handle of the scalpel, and left a smooth surface of white brain slightly soiled with blood, on which vessels might be traced. There was no distinct cyst formed, and at the cut edge of the cavity a worm-eaten and somewhat irregular line was marked as the boundary of the cavity, apparently arising from small subordinate cavities formed by the destruction of portions of brain, owing to the giving way of vessels around the original mischief. (Plate XXIV. Fig. 1.) In the base of the brain some of the vessels forming the circulus Willisii were slightly diseased with opaque patches.

#### CASE CXLI.

*Two or three slight attacks of Hemiplegia affecting the articulation and deglutition ;— death in eleven months. Injury in the posterior part of the Corpus striatum.*

GEORGE ORE, aged 23, was admitted under my care May 27th, 1829. He was a sailor, and five weeks ago, while on his homeward voyage from Cadiz, was lying by moonlight upon the deck. He was suddenly called upon to do something ; and when he rose, fell to the ground senseless, in which state he remained for two or three days, when he found he had completely lost the use of his right arm. Though not bled at the time, he recovered gradually both his intellect and the use of his arm, but his speech has never returned. About ten days ago he was first bled, but without any good effect. It appears that for a year previous to the attack he had suffered from almost constant pain in the forehead, and had frequently been so giddy as to fall. Since the attack, five weeks ago, he has had no pain in his head ; and at present, though the sensation of the hand is imperfect, the motion is very nearly restored : he appears to be perfectly collected, and his mind is unimpaired, but his speech is very defective. Tongue white, protruded very nearly straight. Pulse 76 ; pupils act ; bowels open.

Infus. Sennæ cum Mist. Camph. part. æqual. ter die.

June 1. So giddy as nearly to fall two or three times this morning ; in other respects as before. Pulse 64, weak ; two stools daily.



Applicetur Emplast. Lyttæ nuchæ.

Habeat Julepum Ammonia ter die.

8th. Speech rather more indistinct;—he says he sees distant objects double, and he has much difficulty in drawing in his breath; pulse 72, weak.

12th. The difficulty of breathing and using the muscles of the face now prevents him from smoking his pipe, which he has hitherto been able to do.

Fiat Setaceum nuchæ. Habeat Pil. Colocynth. cum Cal. gr. xv statim.

18th. During respiration it is curious to see how much the alæ of the nose are contracted.

Pilul. Aloes cum Myrrh. gr. x omni nocte.

22d. Applicetur Emplast. Cantharidis occipiti.

23d. The bowels are much inclined to be costive; the blister did not act well, and in the course of yesterday the face became more twisted to the right, and his articulation and breathing worse; he suffered occasional pain in the back of his head.

Mist. Magnes. cum Magnes. Sulph.

Repetantur Pil. et Emplast. Cantharidis nuchæ.

29th. Applicetur Emplast. Cantharidis nuchæ.

July 11th. He was seized at four o'clock this morning with loss of power and a pricking sensation on the left side.

Pil. Col. cum Cal. gr. xx statim.

Applicetur Emplast. Cantharidis nuchæ.

12th. The whole of the left side and the face numbed; tongue very slightly turned to the left side.

13th. His eyes in general follow each other, but he has now and then double vision.

17th. When he looks down the stairs he becomes giddy. His articulation is slightly improved, but he says that he cannot speak owing to the shortness of his breath.

℞ Pil. Galb. Comp. gr. v.

Extr. Col. Comp. gr. v. Fiant Pilulæ omni nocte sumendæ.

Applicentur Hirudines xij temporibus.

31st. His nights have been rendered sleepless by pains in his jaws and teeth; the saliva has always been inclined to run from his mouth. His general power is increased, so that he can go down to the kitchen and bring up the dinner for the Ward without difficulty; his speech, however, is still very indistinct.

Aug. 2. It was found this morning that he had quite lost the power of speech, and he makes signs to show that this came on about five o'clock this morning; he has some choking and difficulty of deglutition, yet with effort can swallow; his breathing is difficult, and he has a great tendency to despond and cry.

Mittatur sanguis ex arteria temporal. ad ʒxij.

3rd. He has not recovered his speech ; deglutition difficult ; little power in the left hand, but can raise the arm tolerably : left leg slightly affected, but he can move it pretty well ;—much dejected in mind. Pulse 96, moderate strength. Denies having any pain in the head ; the seton has ceased to discharge.

For some time he remained very nearly in the same state, unable to speak, yet sensible ; but often bursting into an hysteric laugh if spoken to, and then crying. His appetite great. Towards the end of August he began to articulate single words occasionally, and by movements to express that his left hand and arm were now alone the parts affected.

Sept. 29th. Still unable to articulate, except occasionally a few monosyllables, stating that his left arm is now alone numb, and some stiffness in the calves of the legs.

Early in January he was attacked with erysipelas of the face, which was treated with punctures ; and when he was completely convalescent, an attack of pneumonia came on, of which he died on the 4th of February.

#### SECTIO CADAVERIS.

Considerable emaciation ; sloughs upon the nates ; the chest generally dull upon percussion, more particularly on the upper part of the right side. The arachnoid slightly opake, with a small quantity of fluid beneath it ; the pia mater tore easily from the brain, the convolutions of which were in no way flattened. In the substance of the brain the mouths of the cut vessels were distinct, and perhaps rather large, but no other remarkable appearance could be traced till an opening was made into the lateral ventricles ; these were slightly distended with clear serum, as were the smaller ventricles ; altogether they contained about an ounce of fluid. The appearance in the right ventricle quite healthy ; but on the left corpus striatum, about its middle, was observed a yellow spot of the size of a silver penny-piece, flattened and evidently arising from discoloration of the lining membrane of the ventricle, and some change of structure in the brain beneath. Making an horizontal section through the middle of this discoloured portion, it was manifest that the cineritious part of the corpus striatum was soft and yellowish in colour ; and the disorganization, more or less complete, affected greater part of this body ; while at its posterior part there was besides a thin filamentous structure differing in colour from brain, and apparently the vestige of an apoplectic clot. (Plate XXIV. Fig. 4.) On the right side, that portion of the corpus striatum which forms its pyriform bulb was healthy ; but at its smaller posterior end there was a yellow softening and discoloration, but not above one-third as extensive as in

the left. There was no other trace of disease either in the cerebrum, the cerebellum, or the medulla oblongata, but the serum in the base was rather abundant.

The lungs were very extensively occupied by gray hepatization, approaching to a state of softening; the parts chiefly affected were the upper lobe on the right side and the middle parts of the left.

### CASE CXLII.

*Successive slight attacks of Hemiplegia, affecting the sensation more than the motion, and destroying the power of articulation and deglutition;—death after about five months; disease in the posterior part of the Corpus striatum.*

JAMES WILKS, aged 48, was admitted under my care April 7th, 1830, affected with hemiplegia of the right side. It appeared from his friends that though formerly a very sober man, yet for the last three or four years he had been greatly addicted to intemperance, so as to give an entire change to his character; a scar was also pointed out, on the left temple, occasioned by the horn of a bull several years before, at which time the skull was said to be fractured, but no inconvenience had been since experienced. Six weeks before his admission, without any particular warning, he suddenly lost the use of his right side; but its power of motion soon returned, though it remained very weak and the sensation was almost destroyed. For three weeks he was unable to speak intelligibly. At the time of his admission he seemed, as he lay in his bed, to have the full use of his affected limbs, moving them freely, but he was unable to stand, and he could scarcely grasp so firmly with the right hand as with the left. His face was not in the least distorted, and he put out his tongue quite straight from his mouth. His sensation was however extremely imperfect, both in the right extremities and in the face on that side, and he spoke somewhat indistinctly. Pulse about 70, tranquil. His mind was not affected materially. He was cupped in the neck, had a blister applied between his shoulders, and took gently opening medicines; under which treatment he rather improved, speaking more plainly, feeling more naturally, and walking more firmly. About the beginning of May he was not thought quite so well, and two blisters were in succession applied to his neck. On the 31st of that month, while sitting with the other patients at breakfast, he became suddenly very weak, his power of articulation was almost lost, and his mind fell into a most dejected state; but there was no perfect paralysis of motion to be discovered in his limbs: a seton was introduced into his neck, and attention paid to his bowels. He now took to his bed entirely, lay almost always on his back, attempted in vain to articulate, bursting into tears when spoken to; his tongue was loaded with a thick fur, and his deglutition so imperfect

that he was almost always found fallen into a doze with a morsel of bread or other food upon his tongue. He passed his urine occasionally in bed.

July 1st. His pulse was more sharp and quick than it had been, rising to 120, and there was a short cough, with mucus in the trachea; he still remained in the same way, nearly unable to swallow or to express his feelings, and crying when he attempted it. Blisters were applied to his chest. The pectoral symptoms rather abated for a time, and then increased again; and he gradually sunk, on July 23rd, having previously fallen into a state of insensibility.

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Many of the circumstances in this case and the last were so precisely similar, that it was impossible not to anticipate that the mischief in the brain was situated in the same part: the succession of slight attacks; the imperfect character of the paralysis, affecting the sensation so much more than the motion; the impaired articulation and deglutition; the tendency to despondency and to an hysteric expression of feeling; the absence generally of profound sopor; and the comparatively active condition of the mind;—all served to connect these two cases, and lead before death to the expectation that an analogy would be traced in the morbid appearances. I was unfortunately absent from the Hospital at the time of the inspection; but I will state what was found, in the words of Dr. Hodgkin who performed the dissection: and whatever little difference may be supposed in the nature of the mischief in the two cases, the situation was almost identical.

#### SECTIO CADAVERIS.

“The body was pale and slightly emaciated. He appeared to have had an old fracture of the right thigh, rather above the middle.

“There was some external irregularity of the cranium at the part where the injury was inflicted by the bull, but the inner table was quite sound. There was nothing to notice in the dura mater. The arachnoid was thin and transparent, and raised by a large quantity of clear serum. The sulci between the convolutions were strongly marked. The membranes separated easily from the surface of the brain. The cortical and medullary parts of the brain appeared generally healthy, except a little marbling of the latter. A little to the outer side of the posterior part of the left corpus striatum, a portion of the medullary part, of about the size of an almond, was completely softened, but not altered in colour; it was not sensibly

circumscribed. The corpus striatum itself was softened, and presented a ragged cellular appearance towards the softened part of the medullary substance above mentioned. Its colour was a rather darker duller brown than is natural, with a very little intermixture of dull ochre yellow. It did not appear to me (Dr. Hodgkin) to be the remains of an apoplectic clot,—yet this was a doubtful point, and the affirmative was maintained by some; perhaps there had been increased vascularity without effusion. The right corpus striatum was in a similar state, but to a less degree. On the right, at the posterior part, near to the junction of the cortical and medullary parts, but chiefly in the latter, there was a partial irregularity of texture, as if from an intermixture of hardening and softening. There was a small quantity of serum in the ventricles. The only circumstance observed at the base of the brain or skull was the absence of the pituitary gland. The sella presented a clean and circular cavity, capable of holding a marble; this led to the seeking for the remains of the pituitary gland attached to the brain, but it could not be found.

“The pleuræ were free from adhesions, except at the upper part, where they were old and connected with puckered depressions in the lung and the remains of tuberculous matter, solid in the one lung, and soft and grumous in the other. In other respects the lungs were tolerably healthy. The pericardium was reddened by increased vascularity, and contained an ounce or rather more of highly puriform fluid.

“In the abdomen nothing particularly arrested the attention, except that there were small gray or black spots on the peritoneum, giving an appearance somewhat like what one would expect from a sprinkling of a small quantity of fine gunpowder. The kidneys were rather too firm, and the tunics partially thickened.”

### CASE CXLIII.

*Ossified Arteries of the Brain and two or three small Apoplectic cells, with a peculiar condition of the cineritious substance. Kidneys granulated; urine coagulable.*

WILLIAM SAUNDERS, aged 47, was admitted into Guy's Hospital March 17th 1830. He had acted as clown in one of the minor theatres, and was said to have been subject to some cerebral affection, with occasional vertigo and sometimes incoherence of conversation, for the last two years: and it appears by what we can gather from him and

his wife, that about four months ago he was seized with giddiness, in which he fell down but did not go into a state of unconsciousness, and for a time lost the use of his left hand. When he was admitted into the Hospital he was in a state of great depression: his extremities cold; pulse scarcely to be felt at the wrist; speech very indistinct; and as he breathed, his lips moved as if smoking a pipe. It was absolutely necessary to give him some stimulant to revive him; and he accordingly took the subcarbonate of ammonia, and was ordered a little wine.

18th. He passed a very incoherent night, continually getting out of bed; and at the time I saw him was talking irrationally, and rather unintelligibly. Pulse 80, weak: there is no decided paralysis of any part.

Radatur Caput, et applicetur Embrocatio communis postea.

Admoveatur Emplast. Cantharidis inter scapulas.

R Hydrarg. Submuriat. gr. j,

Extract. Hyoscyami gr. iv,

Fiat Pilula sexta quaque hora sumenda.

19th. Bowels freely acted on: a more tranquil night, but he speaks precisely with the difficulty of a man who is intoxicated.

22nd. Pulse 80, weak; respiration 32, with a blowing effort: there is evidently some great embarrassment about the chest, but he has very little cough: his cheeks are purple. It is impossible to induce him to swallow his pills; he chews them, and they render his mouth black and clammy. No rational answer can be obtained to any question proposed.

He continued to take calomel in the form of pills, and effervescing draughts with tincture of hyoscyamus. Little change took place in his condition till the 24th, when he appeared to grow worse; all that he said was quite unintelligible, and I found him on the 26th lying on his right side almost round upon his face, constantly convulsed, with twitching of the hands and face. Skin hot; pulse 120, weak; tongue dry; cheeks purple: he was just capable of being roused, though he had been lying in a state approaching to coma for the last twenty-four hours: he died in about two hours after I saw him.

#### SECTIO CADAVERIS.

A chronic tumor was found growing from the tendon of the trapezius just where it is attached to the occiput; it was said that this had first made its appearance after some great efforts in contorting his head.

When the dura mater was removed, the arachnoid was seen opaque in some places, having a decided though not a large serous effusion beneath it; the membranes came off easily. The arteries were very much ossified,



not only the basilar and the carotids, but the arteries passing over the corpus callosum; and many of the branches running off from these, as well as the arteries of the fossa Sylvii, were studded with white cartilaginous and osseous patches.

The cineritious substance was rather soft; but its great peculiarity was, that when pinched gently between the fingers a thin layer, about one-third or one-half of the thickness of the whole, separated quite smoothly from the rest, and allowed of being peeled off in flakes as large as a shilling. (Plate I. Fig. 6.) The medullary portion of the brain was rather more firm than usual. The ventricles were permanently distended with serum, and the foramen of Monro dilated. The membrane lining the ventricles was thick and firm, slightly scabrous to the finger passed over it; it had likewise contracted adhesions in two or three parts on the right side, the opposed surface being glued together in the anterior cornu, and again in the posterior, where one portion of the cavity was so completely divided from the rest as to form the appearance of an independent cyst. On the right side of the brain there was evidence of some old lesion, apparently the remains of one or two slight apoplectic attacks; one small cavity about the size of a pea was seen in the centrum ovale towards the back part, and a larger cyst which would hold two or three barley-corns in the corpus striatum of the right side: a similar appearance was in the centre of the left cerebellum. Each of these was formed with firm walls nearly like the membrane lining the ventricles, and was filled with a yellow transparent fluid.

The right cavity of the chest contained a large quantity of turbid serum, with flakes of coagulable lymph, the pleura itself being exceedingly vascular. The lung was compressed, but nearly healthy. On opening the pericardium a small quantity of viscid fluid, like thin gum water or thin melted jelly, was found; and the heart itself was covered with flakes of coagulable matter becoming scabrous. The heart very large, depending on a decided hypertrophy of the left ventricle; the parietes of the right side not appearing to be thickened: in the left ventricle was a fibrinous coagulum, which appeared not of very recent formation.

The liver was rather granulated; the mucous membrane of the stomach was very decidedly hard and rough. The kidneys were in an advanced stage of granulation, small, light-coloured; and some parts, where the tunic was stripped off, rough and granular. In the bladder was nearly half a



pint of clear urine, a small quantity of which was carefully taken out with a syringe, and found to coagulate freely by heat. The inner coat of the bladder itself showed the muscular fibres very strongly.

In this case we find complicated mischief in the brain; the extensive ossification of the vessels probably laying the foundation for the rest, and the small remains of apoplectic cysts marking two or three trifling effusions of blood which had taken place at different times into the brain. The evidence of former inflammatory action was marked by the thickened condition of the lining membrane of the ventricles, and by the peculiar old adhesions which connected the opposed surfaces of those cavities in different parts. There is reason to believe that the condition of the brain during his last illness was rather a state of impeded circulation from the disease in his chest, than any actual state of inflammation either of the membranes or the substance of the brain; and the effusion which was found beneath the membranes had probably taken place gradually during that illness, but more completely in the last two or three days.

The very peculiar condition of the cineritious substance must not be lost sight of, difficult as it is to explain the morbid action of which it was the result. It is a matter of frequent observation, that the cineritious substance is divided into layers, as far as colour is concerned (Case CI. Plate XIX. Fig. 1.); and in cases of close adhesion of the pia mater from inflammation, I have found a complete lamina of the brain tear off, leaving a well-defined surface below. (Case LXVIII. Plate I. Fig. 5.) But in this case, without evidence of inflammation, this separation was more remarkable, though there was no adhesion whatsoever of the pia mater; and I shall shortly have occasion to relate a case where the same morbid appearance was strongly marked, and where, as in this case, the vessels were ossified, and the cerebral substance was very firm; where also vertigo, slight paralysis and occasional incoherence of mind were the leading symptoms during life.

The connection between coagulable urine and granulation of the kidney was also well marked in this case, and another instance was afforded of the connection of this morbid state and disease in the brain.

## CASE CXLIV.

*Hemiplegia. Death from Hydrothorax, about a year after the attack : a yellow softened mass in the right Optic Thalamus ; Urine coagulable ; Kidneys granulated.*

MARTHA RUSSELL, aged 40, was admitted under my care November 7th 1827, labouring under effusion into the cavities of the chest, and anasarca, chiefly affecting the lower extremities. She stated that she had been particularly ill, and had observed the swelling about seven weeks, and had latterly experienced difficulty in lying down. She had suffered an attack of hemiplegia of the right side about a year before, from which she had never completely recovered ; so that at the time of admission her articulation was affected, though she spoke intelligibly : her right hand was completely cramped in its movements, and her leg disabled. Urine scanty, clear, light-coloured, and decidedly coagulable by heat.

Habeat Mist. Camphoræ cum Liquor. Ammon. Acetat. et Spir. Æth. Nit. ʒss,  
et Tinct. Scillæ ℥ xx ter die.

9th. Habeat Pilul. Scillæ cum Hydrarg. omni nocte.  
Repetatur Mistura.

Pulv. Jalap. cum Potass. Supertart. pro re nata.

16th. Mouth slightly affected by the mercury. The urine considerably increased, and the anasarca diminished.

20th. This morning about two o'clock, without having made any previous complaint, she was observed by the patient who lay next to sit up in her bed ; and at the same time, from some unusual noise, the nurse was induced to go to her, when she was found quite dead.

## SECTIO CADAVERIS.

Slight anasarca remained in the limbs. There was not less than a pint and a half of serum in each cavity of the chest. The pericardium was opened inadvertently, so that it is not known whether it contained fluid. Lungs healthy. Heart considerably enlarged ; left ventricle much thickened, yet it was not ascertained what was the cause of this, as all the valves were healthy, except that a contraction had taken place in the mitral, occasioned by an unusual thickening and cartilaginous hardening of one of the columnæ, and two of these seemed to adhere unnaturally. The aorta was healthy. The liver remarkably healthy, but loaded with blood. Kidneys rather small, decidedly granular, and, when the tunic was removed, the surface rough like the papillæ on an ox-tongue, with light points projecting on a purplish ground, and slightly lobulated, approaching to those

of STEWARD (Case VII. Plate III. vol. 1.), but neither so white nor so hard. (See the wax model in Guy's Museum.)

The surface of the brain presented nothing unnatural, nor was there any reason to suspect from the appearance of the convolutions that any recent effusion had taken place. On removing the brain on a level with the ventricles, and laying them open, rather more serum than usual was found, and a yellow brown softened spot, about the size of half a sixpenny-piece, was seen in the centre of the left optic thalamus. This was depressed in the middle, and was covered by the lining membrane of the ventricle, on which one or two small vessels ramified. The whole of the thalamus when compared with that on the opposite side was sunk and flattened, and for some extent round the yellow spot was slightly discoloured. On cutting into the diseased part, no defined cavity was found but a soft mass which broke down completely before the knife to the extent of a cubic half-inch, and was of a yellow, ochry, colour. Several of the vessels at the base had small cartilaginous thickenings upon them; the vertebral on the left side was hard and thick at the place where it had been divided. The connecting artery in the circle of Willis on the left side was not above one-fourth of the calibre of the other; and the branches given off on the left side generally had more of the cartilaginous matter than those of the right, though by no means so much as in some cases of elderly persons.

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In this case the hemiplegic affection was but a secondary consideration at the time of the patient's admission; but the appearances after death were very characteristic of one form of apoplectic disorganization, where there scarcely appears to have been vigour enough to institute a process of repair. The force of the heart's action is another circumstance worthy of remark, and probably was immediately connected both with the diseased condition of the vessels and with the apoplectic effusion. The coagulable quality of the urine here likewise existed with the disorganized kidneys, a form of disease too frequently joined with disease in the head to suffer us to consider the combination as purely accidental.

#### CASE CXLV.

*Hemiplegia on the left side, with Cerebral injury on the same side.*

JOHN WALKER, aged 38, was admitted into Guy's Hospital October 14th 1829,

labouring under a severe attack of bronchitis; his countenance purple, his breathing very difficult, and his legs œdematous. He had considerable hesitation in his speech, owing to a paralytic affection of the mouth and tongue; and his left hand and arm were weak and obviously paralytic, though not to such an extent as to be useless. On inquiring from his relatives, we learnt that the whole left side was paralysed about a year ago, that the affection was sudden and for some time severe, but that he had gradually recovered the use of his limbs to the present time. He survived only three days after his admission, and his death was quite sudden, so that he had spoken to the nurse within a few minutes of his dissolution.

#### SECTIO CADAVERIS.

The dura mater was perfectly natural. The arachnoid and pia mater showed a good deal of vascularity, but of purple blood, arising from congestion; very slight effusion beneath these membranes, which were stript easily from the convolutions, except on the lateral and outer part of the left hemisphere, where it was found impossible to detach them without lacerating the brain, to which they were glued by a thin opake yellow flake of deposit, like fibrin: immediately below this adhesion, and extending to the middle of the corpus striatum, was an opake portion of the brain considerably harder than the brain itself, plainly showing in its centre that it was the scar of an apoplectic cyst, surrounded by hardened parietes. The cavity in this was scarcely so large as half a small French bean, containing a little softened curd-like substance; but the derangement from the injury evidently extended from the middle of the corpus striatum, the structure of which was much disturbed quite to the surface of the middle lobe. (Plate XXIII. Fig. 4 & 5.)

The whole of the remaining parts of the brain, and more particularly those of the right side, were most carefully examined, but without finding the slightest trace of disease. The medulla oblongata was so cut into, that we did not ascertain whether there were any peculiarity in the decussation of the fibres.

The lungs were quite emphysematous, the larger bronchial tubes loaded with viscid pus, and the mucous membrane very red and inflamed. The right lung was also œdematous.

The heart was large, and both auricle and ventricle on the right side most enormously distended with blood, so that the parietes of the ventricle were very thin, and the auricle seemed actually on the point of giving way

with ecchymosis on its surface, and amongst the columns a separation of the fibrin had taken place from the blood, which seemed to be undergoing a complete change in its texture. The liver a little granulated; the pancreas loaded with blood.

The kidneys and intestines healthy, but rather loaded with venous blood.

In this case we see the power of the system to arrest and repair extensive mischief in the brain. The diseased portion of the brain presented a perfect specimen of a species of cicatrization, arising from the drawing together the sides of the apoplectic cyst; and the adventitious deposit beneath the arachnoid was most probably the result of a quantity of blood which had been effused between the convolutions, and of which the red particles had been completely absorbed. The great peculiarity of the case was the occurrence of paralysis on the same side as the lesion of the brain; and this required all the evidence of relations and friends, confirmed by the observations made by the medical attendants during the short period he lived in the Hospital, to induce even those who had seen it to feel positive of the fact. Together with other authorities, we have the high name of Morghani in support of such occurrences (Lib. 1. Epis. 2. § 16.); but having been once or twice nearly deceived myself by the imperfect accounts of friends in such cases, I am not willing to admit them hastily.

#### CASE CXLVI.

*Hemiplegia; depending probably upon Effusion of Blood into a vascular Cyst, the result of former disease.*

THOMAS MORLEY, aged 44, was admitted under my care into Guy's Hospital, June 4th, 1828. He was a stout dark-coloured man, with a short neck, and a good deal marked with the small-pox; he sold fruit in the street, and was in the habit of drinking. Monday 19th May, seventeen days before his admission, without suffering any previous pain in the head, or giddiness, he first perceived that he had lost the use of the thumb and the two next fingers of the left hand. He however continued to work for four days, when he lost the use of his whole arm completely. A few days after, he found his left leg grow weak, and three days before his admission he found his tongue falter, and he could not direct it well. At the time of his admission both the leg and arm of the left side were incapable of voluntary motion; his mouth was drawn slightly to the right side; the tongue could be protruded straight, and was tolerably clean; his voice thick, and it was said that the defect in his speech

varied a good deal at different times. He complained of occasional pain in the back of the head; bowels rather confined; pulse 84, of good strength.

Mittatur sanguis ad uncias decem.

Habeat Pil. Colocynth. cum Calomel. gr. xv statim, et Haust. Sennæ pro re nata.

5th. Blood not buffed; he has complained of some pain in the head, which he thinks was rather increased after the bleeding, but he did not become the least faint. At present he has no pain; three stools from the pills. This morning, for the first time, his left hand has been affected with severe spasmodic shaking; he said he thought it would have drawn him out of bed, and he compared it to a half-dead eel.

Applicentur Cucurbit. cruentæ nuchæ, et detrahatur sanguis ad ʒij.

Repetantur Pilulæ hora somni.

6th. The arm has again been spasmodically affected; he says that he has more sensation in his leg, and that his tongue feels stronger.

Habeat Misturam Magnesicæ cum Magnes. Sulphat. pro re nata.

7th. He complained of pain in the head; in other respects as before.

8th. Pulv. Jalap. Comp. ʒij statim.

He is ordered to have his head and body raised a good deal in bed.

9th. The pain in the head very severe; pulse strong.

Applicentur Cucurbitulæ cruentæ nuchæ.

Repetatur Pulvis cras mane.

11th. Pain in the head somewhat relieved, but still a source of complaint.

14th. Violent pain in the back of the head, referred to the right mastoid process; countenance flushed.

Applicetur Embrocatio communis capiti raso.

16th. Still complains greatly of pain in the head. The sensation of the left arm is become almost perfect.

Hirudines xx temporibus, Haust. Sennæ pro re nata.

18th. The leeches gave relief, but the pain is by no means gone.

Repetantur Hirudines xx temporibus.

20th. He says he has derived great relief from each application of the leeches, but still complains of pain in the back of the head on the right side. There is not the slightest return of the power of motion in either of the left extremities.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad ʒx.

21st. I saw him about two o'clock. He was decidedly less alert and sensible than I had seen him; he was inclined to doze and his articulation was less distinct. The pain of the head was much relieved, but he was evidently low; for some days past he had experienced occasional hiccup and wandering of intellect, which latter had been more



during the last night. Tongue loaded and moist; frequent yawning; pulse 64; skin cooler than natural: bowels twice open. He sunk the following day.

#### SECTIO CADAVERIS.

From particular circumstances, we were unable to obtain the examination till two days after death, and then only the head.

On raising the skull, the vessels of the dura mater immediately struck us as being unusually turgid; and when it was turned back, the convolutions of the right hemisphere of the cerebrum were obviously flattened and wide, and a very evident sense of fluctuation was communicated to the hand; there was no unusual external vascularity. On inserting the scalpel to the depth of about a quarter of an inch on the top of the hemisphere, and rather to the back, in the part where the fluid seemed to approach nearest to the surface, it was immediately seen that the fluid was nearly transparent serum very slightly tinged with blood. An incision was then made horizontally about one-third down, nearly across the hemisphere, and this gave escape to above an ounce of serous fluid, and opened freely into a cavity, which proved to be a complete cyst, and a clot of coagulated blood filled about one-sixth of it, lying at the bottom. (Plate XXV.)

This was the most decided membranous cyst I ever saw surrounding what might possibly have been an apoplectic effusion; and when the coagulum was removed, which was done by accident while taking out the brain, the cyst presented the most beautiful appearance of vascularity. The coagulum came away completely without leaving any part adhering, and consisted of a red clot and a more light-coloured membranous substance like a little fibrin separated.

The cyst, which was situated above, and rather external in the posterior part of the right ventricle, had no communication with either ventricle; its thickness was at least one-twelfth of an inch, and it was so firm as to bear being laid hold of by a forceps and turned from part to part without breaking: it felt rather soft, but was tough, and was easily torn from the surrounding brain, which was rather less firm than healthy brain; but considering that two days of great heat had passed since death, could not be considered in a state of actual softening.

With regard to the cyst itself, it would be saying too little to call it vascular; it appeared formed of a congeries of vessels, and those much larger



and thicker in substance than generally seen on the natural membranes of the brain. Many of them were convoluted in a most beautiful manner; and some, larger and thicker than the rest, lay more superficially, looking whiter than the ground on which they lay. Some of them were raised on the surface of the cyst, and in two or three instances they ran from one inequality of the surface to another, so as to allow a bristle or a common blow-pipe to be passed under them. There were four projecting nipple-like points in the cyst, of a darker colour than the rest; two at the upper and two at the lower part. They seemed coloured by extravasated blood as well as by the blood which filled the vessels.

Besides the chief cyst, there was another rather above, behind, and to the inside of it, which though very near did not communicate; it was precisely of the same character as the other, but its parietes were nearly double the thickness, and seemed to be collapsed and corrugated; it contained not above half a dram of fluid, very nearly colourless, and there was no sign of a coagulum.

The ventricles appeared in no way implicated, and all the other parts of the brain were natural.

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This case presents throughout many interesting features. Though sudden in its first attack, it was progressive in its course; so that, viewing it as a case of apoplexy from ruptured vessels, we must suppose that blood was effused at three or four distinct periods. At the time of his admission only three days had elapsed since the last aggravation of his symptoms; he complained of occasional pain at the back part of the head, and it appeared a measure of ordinary prudence to attempt to check all further effusion by moderate depletion. It is however very doubtful how far the loss of ten ounces of blood on the first day, or of twelve on the following day, was productive of good effect. The peculiar convulsive motions of the arm appeared in some degree connected with the loss of blood, and the severity of the headache might have been increased by it: but as these were attended with some return of sensation, I came to the conclusion that the loss of blood had upon the whole been beneficial; and when after the lapse of three days, in which no blood had been taken, I found the headache still very severe, I again took ten ounces of blood by cupping: some relief was given from the pain, but during the five following days it was

severe, nor did the leeches and cupping, which followed each other at the intervals of two days, materially remove that symptom.

It becomes likewise a very questionable point, how far it is possible to consider these two perfectly formed cysts as the remnants of apoplectic mischief, occurring within the short space of one month previous to death. As I have never met with a similar morbid appearance, I am led to compare with it any approach which I may have witnessed, and with this view would refer to the condition of the parietes surrounding the sanguineous clots in the cases of MARY AGNES (Case CXXXVI. Plate XXII. Fig. 2.), and of JOHN PUGH (Case CXL. Plate XXIV. Fig. 1.), in both of which we find vessels beginning to ramify upon the broken surface, and other larger vessels dissected out so as to be prominent, and even in parts detached from the brain, like some of the larger vessels in the present case. We can easily suppose that vessels thus freed from their usual restraint, and brought to the surface, would admit of great distention, and might form something very much approaching to the vascular plexus composing these cysts: still however, if this be the theory of their formation, the time allowed appears inadequate; and if such be the case, and we have to look to some previous attack of which we have no account, we may as easily suppose that the vascular cysts were morbid structures not originating in apoplexy, but filled with pure serum, till, by the bursting of some of the vessels of which they were composed, blood was poured out, which by overfilling the cavity would produce pressure and all the symptoms which we have seen; and this latter view is borne out by the fact that in the smaller cyst no bloody clot was found, while in the larger the appearance of certain parts of the surface rendered it highly probable that blood had lately been given out by the vessels, and at the same time the clot was more like recently coagulated blood than we should expect to find in a cyst so highly organized. It is, then, upon the whole most probable that this was a case of hemiplegia from the effusion of blood into a vascular cyst already formed, either by a previous effusion of blood or by some other cause; and the pain experienced during the whole disease depended possibly on the membranous nature of the surface on which pressure was made.

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THE few following CASES are introduced, not on account of any peculiarities which they possess, but as affording a fair example of the history of such attacks as arise from causes of pressure acting suddenly, but which have not proved immediately or quickly fatal.—Similar instances, varied in almost endless ways, will suggest themselves to every experienced physician, depending for the shades of difference which they present, with regard to the extent and situation of the parts paralysed, the character of the paralysis, and the progress towards cure or alleviation, upon circumstances which are often the subject of rational conjecture rather than of certain inference. Such cases, by their frequency, supply us with the foundations on which we build our hopes of being able to prolong life, and not seldom to secure useful and happy existence even after the occurrence of severe attacks and of very unfavourable symptoms. But at the same time we too frequently find, on tracing these cases through a succession of years, that the disease has recurred, and has often ultimately proved fatal.

#### CASE CXLVII.

*Partial Hemiplegia, with pains in the affected limbs.*

ANN BROWN, aged 33, was admitted into Guy's Hospital January 19th, 1825. She had experienced headache, vertigo, and occasional dimness of sight for some weeks, and had been bled, and blistered on the neck with very little relief. A week ago, on waking in the morning she was unable to move her left leg and arm as well as usual: she now complains of dull heavy constant pains at the left temple, extending down the face and neck on that side, and occasionally so acute as to force her to draw her mouth on one side for a few moments, when her speech becomes affected: she has a ringing sound in her ears, occasional nausea, and vertigo; the pupils act sluggishly, particularly the left, which is rather more dilated than the right: she has had a good deal of pain in the left leg and arm ever since the first attack, particularly at the joints, increased on pressure; and they occasionally become benumbed and insensible. Pulse 108, of tolerable strength, easily compressible; tongue covered with white fur, moist, and slightly drawn to the left side; bowels pretty open. She attributes the present attack to exposure to cold and wet while scouring the deck of a vessel two months ago, since which time the catamenia have returned every three weeks with much pain.—She gradually recovered; but her partial paralytic affections were by no means cured when she left the Hospital.

In this case, exposure to cold was the immediately exciting cause of the attack. The pains in the affected limbs were such as are often ascribed to rheumatism, and in some cases with correctness; but sometimes they appear connected with an affection of the nerves on which the paralysis depends, and are independent of rheumatism.

### CASE CXLVIII.

*Hemiplegia, probably depending on diseased vessels, with pains in the affected parts.*

MARY LAMBERT, aged 60, was admitted into Guy's Hospital, under my care, December 17th, 1823. The left arm and leg were partially paralytic, the power of motion very much diminished, and she was not able to grasp objects with any force. Deglutition imperfect, and the taste somewhat impaired: her sight and hearing were not affected: she complained of some pain in the head and a sense of swimming, and when she stooped, was in danger of falling. Bowels confined, which was their usual state; tongue clean and moist; appetite natural: pulse 76, firm.

She had for several years suffered from giddiness in the head, more especially for the last ten, since the cessation of the catamenia.—About ten days ago, immediately after an attack of giddiness,—which came on without any known cause, and in which she was almost deprived of consciousness, but did not fall,—the present symptoms of paralysis came on, and have not increased.

She was immediately cupped from the neck to twelve ounces, and the bowels were freely acted on by colocynth and calomel pills and by senna and magnesia draughts; and at the end of ten days she was able to walk, though at her admission she could not stand.—She complained, however, of many local pains, which assumed so fixed a character as to require attention, particularly near the apex of the heart, which was relieved by blisters: she had likewise wandering pains in the paralytic limbs: but one of the most decided of these, and which remained fixed to a spot, was referred to the calf of the left leg. Strict attention to the state of the bowels, and the occasional abstraction of small quantities of blood from the neck when symptoms of giddiness supervened, enabled her after several weeks to leave the Hospital in a state of great improvement.

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In this case the nature of the symptoms undoubtedly bespeaks vascular disease; and it is probable that the rupture of some small vessels gave rise to the decided attack.—The similarity of the mode of attack with that of a man named John Roberts, who was once under my care, and the reference of pain to the calf of the leg, may by possibility have depended upon an effusion in the same part of the brain, namely, the surface immediately

beneath the membrane of the corpus striatum.—We have here another instance of the pain resembling rheumatism which so often accompanies paralysis: but in the following case this symptom is still more marked and distressing.

### CASE CXLIX.

*Hemiplegia, with great and constant pain in the paralytic limbs.*

SUSAN HARRIOT, aged 65, was admitted into Guy's Hospital, under my care, August 11th, 1830, the subject of complete hemiplegia of the right side. With regard to the previous circumstances of her health, it appeared that she had been subject to great action of the heart and to frequent vertigo for several months, and in September of last year fell down stairs, but was not aware that she had a fit at that time, nor that she received any material injury in the fall. Six weeks before her admission, having previously for a few days complained of pain in her chest and left side, she was suddenly seized, while washing her hands, with complete insensibility for a short time, followed by loss of power on the right side of the body; and she has since had no return whatever either of sensation or of motion in the extremities, but her body has regained slight sensibility. Her articulation is pretty distinct, except from a slight drawing of the mouth; her paralytic hand is œdematous.

From the time she came in, her constant complaint was the tormenting and sometimes acute pain she suffered in the affected limbs, although at the same time her sensation to external impression was quite destroyed.

### CASE CL.

*Hemiplegia, probably depending on pulmonary disease, much relieved.*

BENJAMIN GREEN, aged 45, was admitted into Guy's Hospital November 17th, 1824. He had been labouring under severe cough and dyspnoea for six weeks, and was, the day before his admission, when using great exertion in rowing, suddenly seized with insensibility; and on recovering himself, found that he had lost the power of his right side, and was unable to articulate: he was cupped in the neck, and purged: the power of his leg and arm returned to a considerable degree, but he had a fixed impediment in his speech. Tongue clean; appetite good: pulse 60, labouring. His bowels were kept freely open, and he took a combination of squills and the gray oxide of mercury, with a small quantity of opium; and as he complained in a day or two of pain in the head, some more blood was taken by cupping. He left the Hospital after a few weeks, much relieved in his paralytic affection as well as in his respiration.

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In this case, it would appear that the disorder in the respiration had

laid the foundation for the effusion of blood in the brain, which was immediately induced by the exertions to which he was exposed at the time.

### CASE CLI.

*Slight Paraplegia from cerebral congestion, caused by obstruction in the Lungs, cured by Purgatives.*

ELIZA SCOTT, aged 33, whose dingy countenance bespoke pulmonary obstruction so strongly as to lead at once to inquiries respecting her breathing, was admitted, under my care, into Guy's Hospital, August 11th, 1830. She was quite unable to walk or stand, from paraplegia.—It appeared that she had been long accustomed to occasional pain in the head, with giddiness and sickness, and to a most severe asthmatic affection, which often came on at night and prevented her lying down: but from this she had been rather unusually free for some time,—when about six weeks before, while suckling a child about eleven months old, she had suddenly heard that her son had received some injury; she was immediately seized with a fit, which appeared of a somewhat hysteric character, and was relieved by crying; but it left a numbness in the left thigh, together with a weakness of the leg, from which she had not recovered, and the arm of the same side frequently became numb. A few days after the right leg also became numb and powerless, so that she could no longer support her weight. Bowels habitually confined.

Habeat Pilul. Aloes cum Myrrh. gr. xv. omni nocte, et  
Mist. Camphoræ cum Spir. Ætheris Sulphur. ℞xij. ter die.

The aloes and myrrh pill was afterwards increased to a scruple, and twelve grains of the compound scammony powder given frequently in the morning.

She improved so much under this plan of treatment, that in ten days she could rise from her bed and walk some distance. She afterwards had the guaiacum bolus three times a day, and went on gradually improving, till on the 6th of September she was able to walk firmly without any assistance, but still complained of slight giddiness in the head, and an occasional chill along the left extremities, the arm of which side remained weaker than the other: she felt, however, so well, that having a large family to look after, she requested to be allowed to return home, which she did.

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In this case, as in the last, the paralysis appeared to depend on cerebral congestion, arising from the obstructed circulation in the lungs, augmented by habitual constipation. Some hysteric symptoms showed themselves, and the complaint chiefly yielded to purgatives.



## CASE CLII.

*Hemiplegia, affecting both sensation and volition, followed by slow and partial restoration.*

WILLIAM PHILLIPS, aged 50, was admitted into Guy's Hospital November 26th, 1829. A particularly sober man, never subject to pain or fullness of the head. He was perfectly well on going to work at nine o'clock, but suddenly without any warning, while at work with another man, fell down, and it was found on raising him that he had entirely lost the power of the right side. He was immediately brought to the Hospital, and on being visited at half-past one was found to have lost both sensation and voluntary motion on that side; the leg was continually in spasmodic action; the mouth was strongly drawn to the left side; the pupil slightly contracted, and not influenced by light; speech much impaired but not entirely lost, and he was sensible to questions addressed to him. Breathing slow but not stertorous. Pulse 68, and rather oppressed; feet and hands cold. Mustard poultices were immediately applied to his feet, and as soon as his extremities became warm, he was bled to twelve ounces. The pulse soon rose after the bleeding; the blood had flowed slowly although from a large orifice; and sixteen ounces more were then taken by cupping from the back of the neck. His head was shaved, and an embrocation applied and purgatives administered.

Evening. He received a severe blow on the right side of the head soon after he had been shaved, from falling out of bed, having been incautiously left for a few moments. Pulse full and hard; bowels freely open; less spasmodic contraction of the right leg. The pulse became softer after bleeding, and he appeared more sensible.

Repetatur Venæsectio ad ʒxvj.

27th. No pain of the head: pulse 100 and softer; bowels freely open; can move the right leg, and feels when pinched; tongue drawn forcibly towards the left side, and furred. Pupil rather contracted. He is much more sensible.]

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒxiv.

8 P.M. Bowels not moved since last report; pulse 96, soft and compressible.

Sumat Haust. Cathart. quarta quaque hora.

28th. Passed a quiet night; has less power over the right leg; the sensibility has diminished since yesterday; he is perfectly sensible; pulse 80; hard and contracted; bowels freely acted on; tongue slightly furred; says he has no pain in the head; is lying on his left side, and is continually grinding his teeth.

29th. Had a quiet night; no power of raising or moving the right leg voluntarily, although it is frequently drawn up and down; yet he says he is quite unaware when he does it. Pulse 76; not particularly hard or full; no pain in the head; bowels open; passes his water freely.

30th. Passed a quiet night; no increase of sensibility of the right side; the line of demarcation between the sensible and insensible parts distinctly defined posteriorly



by the median line, but not so much so on the abdominal parietes : pulse 76, rather strong and hard ; no pain of the head ; bowels relieved but once.

Ext. Colocynth. cum Calomel. gr. xv statim.

Dec. 1st. Quiet night : pulse 64, rather hard ; bowels freely open ; no increase of sensibility ; tongue furred ; no pain of the head.

Applicetur Empl. Lyttæ inter scapulas, et habeat Mist. salinam.

8th. Bowels freely open ; pulse 76 ; sensibility extending over the right side.

12th. Tongue foul ; pulse 80 ; fæces involuntary and loose.

13th. Nearly in the same condition ; but now he evinces more sensation, being able to retain his fæces, which were passed to-day of a firm consistence and dark colour ; urine no longer passed involuntarily.

19th. Sensibility of the extremities returning slowly.

22nd. Went into another ward, relieved ; but at the expiration of two months left the Hospital scarcely able to support himself in walking.

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In this case the injury was sudden and great ; most probably occasioned by the bursting of some considerable vessel, and the effusion of blood into the left hemisphere of the cerebrum, extending to the posterior part of the corpus striatum. There was no proof of previous disposition to such attacks, nor was there any renewal of them ; but the cure could only be effected by the slow processes of absorption and reparation.

### CASE CLIII.

*Hemiplegia, without loss of consciousness ; slowly convalescent.*

ELIZABETH AUDLY, aged 48, was admitted under my care into Guy's Hospital, September 17th, 1829, affected with hemiplegia of the left side. From her account it appeared that she had been much subject to sick headaches. The catamenia were quite regular to the age of 42, when they ceased, and she had enjoyed excellent health since that time. About three months ago she felt a numbness in the right leg for a few hours, and she thought no more about it ; but three weeks ago, when she appeared to be in perfect health, after working hard one day she felt a numbness in the left hand, which gradually increased to the shoulder ; then a numbness in the left leg, and afterwards, making an effort to rise, she completely lost the use of the left side. The whole of this occupied about a quarter of an hour : she was immediately bled freely, and the following day had leeches applied to her temples : a day or two after she was again bled from the arm. About one week after the attack, she began to perceive a return of motion in the leg ; and three days before her admission into the Hospital, that is,

about eighteen days from the attack, she moved her arm a little. However, at the time of admission, even that little power of motion seemed to be lost: her arm was quite useless, and fell from the glenoid cavity so as to leave quite a space between that and the head of the humerus, and her fingers were immoveable. She could move her leg as she lay in bed, but was unable to stand or walk; when she fell asleep, the knee was often contracted and bent, and she was unable for half an hour to get it straight: the tears flowed readily as she spoke: she denied having the least pain in the head. She was ordered to be cupped between the shoulders, and great attention was for some days paid to her bowels. She was then put on the use of vegetable tonics, and given a moderate diet: under this she very slowly improved, and at her own desire left the House on the 7th of December, still infirm.

### CASE CLIV.

#### *Hemiplegia; partial restoration:—death by a relapse.*

PHILIP RADFORD, aged 46, was admitted under my care, February 5th, 1830, affected with hemiplegia: he was a thin middle-sized man, and his occupation was to work the steam-engine of Barclay's Brewery. It appeared that as much as sixteen years before he suffered an attack of general numbness over the whole body, and that feelings of this kind had returned at intervals of a year or less ever since that time. For the last two months he had suffered continual headache, particularly on the right side of the forehead, and during that time had frequently experienced a sense of numbness and vertigo; and about two hours before his admission into the Hospital, as he was walking he felt his right foot become very heavy, and then his right hand; his articulation also became indistinct. He was brought to the Hospital quite unable to stand, though still retaining slight power of moving his foot when he lay in bed: his hand was motionless, and retained scarcely any sensation. The sensibility was very obscure in all the parts both of the body and limbs of the affected side, and this could be traced accurately to the middle line of the body and head, including the ear and cheek; the mouth was drawn to the left side; the speech indistinct; the pupils acted naturally when light was brought to them; his intellects quite undisturbed: pulse 84, full; tongue loaded; bowels costive; head more free from pain than for a long time before the attack.

He was immediately bled freely from the arm, and this was repeated in the evening: he took a brisk purge of colocyath and calomel, and, his head being shaved, a cold embrocation was applied.

6th. Passed a good night and had several stools; he could move his leg more freely, but not his hand: pulse full; face flushed. He was again bled to fourteen ounces; and in the evening cupped to the same extent from the neck.

8th. Moves his right leg and knee quite freely; speaks better; has more sensation

in the hand and arm, but they are quite motionless : pulse 78 ; slight pain in the left side of the forehead ; face flushed ; bowels to be kept regularly open, he is to take occasionally slight mercurials, and a blister is to be applied to the back of the neck.

After this time it was not thought necessary at any time to bleed him ; but blisters were several times repeated, a slender diet persisted in, and at the end of about six weeks he walked with little assistance, and became gradually more firm on his feet ; but the power of the upper extremity returned very slowly, so that at the expiration of ten weeks, when he left the Hospital, his arm was still in a sling, and, though he moved his fingers tolerably, he had no power in them ; he was able to bend his elbow, but had no free motion of that joint.

I understand that this man, after he had returned home for some weeks, had another fit of apoplexy, in which he died.

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The history of this case may be conjectured with tolerable certainty : long irregular distribution of blood, probably accompanied by diseased vessels ; extensive sanguineous effusion into the left hemisphere, perhaps injuring the posterior part of the corpus striatum. This effusion having ceased, the process of reparation went slowly on ; some fresh excitement induced increased flow of blood ; the injured vessels again gave way ; the effusion became more extensive, and the blood probably burst its way into the ventricles ; but the exact circumstance of his death I never learnt. Had he been contented to remain quiet for some months longer, it is very possible that the injury would have been more completely healed, and that with care he might have lived many years ; but his arm would never have been perfectly restored.

#### CASE CLV.

*Slight Paralytic Affection removed by Seton and a combination of Purgatives and Tonics.*

WILLIAM YOUNG, aged about 36, was admitted into Guy's Hospital, June 17th, 1829, under my care, with considerable paralytic affection both in the nerves of motion and sensation, yet not such as to prevent his walking. It appeared that he had always had strabismus of the right eye ; but besides that, the pupils were decidedly dilated, acting imperfectly : his walk was very unsteady, and he had a sensation of numbness at the tips of his fingers and on the nates, and occasional sharp pain over the left eye. About ten months ago he was salivated for a diarrhoea which had continued for two years, and since that time his bowels had been much better, though always irregular. During the last winter he complained of palpitation and sleepless nights, and felt frequently great loss of power and numbness, but never experienced pain in the head. On the

first of May all these symptoms increased; first feeling numbness and tingling in his feet and legs, then in his hands, and afterwards in his whole body. About the 6th of May he had pain in the back of his head and between his shoulders; and at that time he experienced a rumbling sensation in his head; his speech was affected; his mouth drawn a little to the left, and deglutition impaired.

Fiat Setaceum nuchæ.

Habeat Hydr. cum Cret. gr. v. stat., et Olei Ricini ʒss. post horas quatuor.

18th. Sumat Mist. Magnes. cum Magnesiz Sulphate ter die.

25th. Decidedly improved; he walks much more steadily.

Repetatur Mistura.

26th. Yawns very much, which seems to give him pain in the temples.

July 3rd. Bowels rather too relaxed.

Habeat Quinæ Sulph. gr. j. ter die, et Misturam Magnesiz pro re nata.

17th. Pilul. Hydrarg. gr. v. alternis noctibus.

Haust. Sennæ pro re nata.

The same plan of treatment had been continued, and the seton kept constantly discharging: he now walked perfectly well, and complained only of occasional sensations and tingling in his limbs when he placed them in particular positions, and these chiefly on the left side.

Aug. 31st. This is the first day that he has been completely free from all unpleasant sensations. He still remained a fortnight in the House, and left it well.

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Although the continuance of symptoms and their decided aggravation at first led me to fear serious organic mischief in the brain, yet there is great reason to believe that the injury was rather functional and depended upon vascular congestion.

## CASE CLVI.

*Hemiplegia, with early restoration.*

WILLIAM LACKLAND, aged 45, applied to me, June 27th, 1828. He stated that two years before he had suffered from nervous fever, for which he was confined to his bed for nine weeks, but was not particularly affected in the head: yet this was followed for a long time by a confusion in his head and in his vision; and thirteen weeks ago, while at chapel, he felt confusion in his head, and for a short time lost his consciousness; one hour after which he suddenly lost the power and sensation of his right leg and arm. For three weeks the paralysis remained complete, after which he gradually recovered. At the time he came under my care he had slight lameness, his hand was weak, and he suffered various false sensations, as of water trickling about different

parts, and slight giddiness. The means employed were counter-irritation in the neck, and gentle tonics, while the bowels were regulated by medicine : and after a few weeks he returned home to the North of England, much stronger and greatly improved in all his morbid sensations.

In this case there was obvious predisposition to vascular congestion, and an irregular distribution of blood in the brain, which was most probably followed by the rupture of vessels in the left hemisphere, forming a coagulum of small extent. It is not however impossible that no actual rupture had taken place.

### CASE CLVII.

*Apoplexy, probably from rupture of vessels, followed by Hemiplegia, completely relieved.*

JOHN WINCHESTER, aged 37, was admitted under my care into Guy's Hospital, November 28th, 1827; the subject of hemiplegia. He was a groom, a man of moderate stature, with cheeks naturally florid, with numerous vessels. On the 9th of November, about eleven o'clock in the morning, having been previously for a few days occasionally subject to vertigo, he was seized with giddiness while at work in the stables; was bled freely,—as he believes to the extent of a quart,—and fainted: he felt much relieved, and returned to his usual work. When taking away the dinner things, he was suddenly seized, and without giddiness or loss of senses he at once lost both the power and sensation of his left side. Since that attack he has only had thirty-eight leeches applied to the temples and two blisters to his neck, and he has been frequently purged. At this time the power of moving the toes is alone returned, sensation has been restored to all the parts; the face is still drawn to the right side, but less than it was; the ankle of the affected foot is oedematous: pulse 80, of moderate strength; no pain in the head.

Habeat Hydrarg. cum Cret. gr. v. omni nocte, et Misturam Sennæ mane quotidie.

Dec. 3rd. Moves his fingers rather better, and his toes and foot a good deal; his tongue is protruded a little to the left side; three good dejections.

7th. Found he could stand and walk with one stick yesterday; he has more use of his hand, and can raise the arm to the head.

10th. Is able to walk with the assistance of a stick: pulse 88; rather full.

14th. Can walk without a stick, and easily raises his hand to the top of his head.

21st. Walks a little lame; bowels regular: he is ordered to use his arm as much as possible.

24th. Complains of slight giddiness, but walks without the assistance of a stick.

Applicentur Cucurb. cruentæ nuchæ, et detrahatur sanguis ad ʒxiv.

28th. Still complains of some giddiness without pain; walks slightly lame.

Applicentur Cucurb. cruentæ nuchæ, et detrahatur sanguis ad ʒviiij.

Feb. 1st. Arm and foot still weak.

11th. He experienced slight momentary giddiness this morning while in the chapel.

Applicentur Cucurb. cruentæ nuchæ, et detrahatur sanguis ad ʒx.

His diet, which had been very low, was gradually improved, and he returned to service the latter end of February.

It is now more than three years since he was dismissed from the Hospital, and he remains in perfect health, without a trace of his paralytic affection. He pays great attention to his bowels, and whenever he experiences any unpleasant feeling in his head he loses a little blood by cupping from the neck.

Of the great and habitual tendency to congestion in this case, there can be no doubt; but in all probability the mischief was not confined to congestion, but was attended on the 9th of November, 1827, by more serious lesion. It is comparatively rare to find such well marked cases recover so completely.

### CASE CLVIII.

*Apoplexy, followed by Hemiplegia, and almost perfect restoration.*

WILLIAM WEBB, a man of short stature but not of full habit, enjoyed good health till the beginning of June 1829, when he frequently lost his sight several times in the day, so that suddenly, as he walked along the street, he was in total darkness, and obliged to stand still. This lasted for a few minutes and went off again. On June 24th he fell down in the street quite senseless, and in that state was brought to the Hospital about half an hour after the attack. At that time he had all the symptoms of complete apoplexy.

He was bled to thirty ounces, and afterwards cupped to the same amount, and on the following day recovered his senses; but both the arm and leg of the left side were completely paralysed, and his speech affected.

July 25th. He has gradually recovered the use of his limbs, and now walks, and uses his arms pretty well; but his affected leg often starts and is painful.

27th. Last night at 7 o'clock he suddenly became sick, and this has recurred ever since, when he rises to sit up in bed, at which time he feels giddy; he has brought up three chamber-pots full of fluid.

Habeat Pil. Colocynth. cum Cal. gr. xv. statim.



Applicentur Cucurb. cruentæ nuchæ, et detrahatur sanguis ad ʒxiv. Admoveatur Emplast. Cantharidis postea.

28th. Much relieved immediately by the cupping, and feels much better, but still complains a little of giddiness. Pulse 74, slightly labouring.

Applicentur Cucurb. cruentæ pone aures, et detrahatur sanguis ad ʒxij.

30th. Slight return of sickness when he rose out of bed this morning. Pulse still labouring.

31st. Much better, and more cheerful.

Aug. 24th. Still goes on well, walking about the ward by help of a stick.

In the middle of September he was dismissed, having no complaint but a little unsteadiness in his walk.

In this case, in spite of the complete hemiplegia which succeeded the severe attack of the 25th of June, there is great reason to believe that no actual lesion took place in the substance of the brain, but that the greater part, if not the whole, depended on vascular congestion, which gradually subsided, leaving him subject to returns.

### CASE CLIX.

*Hemiplegia of the right side, preceded by pain in the left side of the Head, relieved by Nux vomica.*

ELIZABETH NEWMAN, aged 30, was admitted April 23rd, 1828, labouring under hemiplegia. On the 16th of last November, a few weeks after lying-in with her fourth child, while rising in the morning, she was seized with paralysis of the right side, losing at the same time her senses for a few minutes. Before this time she had been growing stout, and had been very subject to headache; this pain was more particularly in the left temple, and it was excessively severe in that part at the time of the attack. For six weeks previous to the attack the lymphatic glands on the left side of the neck were much enlarged, and they remained so at that time.

In this case, besides gently opening the bowels with the aloes and myrrh pill, I tried the effect of the Nux vomica, beginning with a grain three times a day, and going on gradually, till on the 2nd of June she took six grains. Under this she decidedly improved; the power both of her arm and her leg increasing: and she left the Hospital, at her own desire, greatly relieved.



## CASE CLX.

*Hemiplegia relieved by Arsenical Solution.*

JOHN FINCH, aged 28, a stout young man, applied to me August 6th, 1828, with hemiplegia of the left side. It appeared that he had been getting unusually stout, and had frequent pains in the head; and awaking one morning, about three months since, found that he had entirely lost the motion of the left side, and that his power of speech was gone: these had been gradually restored, but still the side was weak, he walked with much difficulty, and his mouth was slightly drawn.

I kept his bowels freely open, and applied blisters to his neck. During the whole month of September he complained very much of a sense of giddiness, and of difficulty in articulation. Leeches were applied two or three times to his temples; he was bled once from the arm, and a seton was inserted in his neck: but he seemed to derive very little benefit, and in the beginning of October I began with the mineral solution, giving him four minims three times a day in the infusion of cascarilla. On the 17th he was able to walk without a stick, and went on improving so much, that on the 24th he left the Hospital in a state of comparative firmness and health.

## CASE CLXI.

*Partial and temporary Paralysis much relieved by Arsenical Solution.*

MARGARET LOWE, aged 32, was admitted under my care into Martha's Ward, March 12th, 1828; rather a full-made though pallid woman, marked with the small-pox, and her nose seemed to have suffered from disease.

While employed in washing, two months before, she had been seized suddenly with a loss of power first in the left leg, then in the arm of the same side, and for one hour her speech was much affected. In two or three hours the use of her leg and arm returned, but they have remained ever since very weak. This attack was accompanied with pain in the head: she was bled at the arm, had leeches applied to the temples, and a blister to the neck. A fortnight after she lost the use of both of her legs; she had nothing done: the right leg had now recovered a good deal, but the left leg remained nearly useless, and she suffered frequent pain, which she compared to cramp, in the left thigh: her bowels were confined, and she passed her urine involuntarily in bed.

A blister was applied to her neck; her bowels freely purged with colocynth and calomel, and compound jalap-powder and a mixture of camphor and infusion of senna.—In a few days time the blister was repeated on her neck.

March 28th. She was able to stand on her right leg, but was still unable to retain her water.

The same plan was pursued, but the blisters were applied to the loins ; she was freely purged ; was allowed beef-tea and arrow-root, and a little animal food at times.

April 28th. She was able to walk to the fire-place with crutches ; and by the middle of May could walk across the ward by the help of a stick.

Through the months of May and June the blisters were continually repeated on her loins, so that she was seldom without one discharging, and her bowels were kept freely open, and she was able to walk to the nearer parts of the ward.

July 11th. She complained of pain in her head, and sickness, and for a minute lost the use of her left hand. She was cupped from the neck, took calomel followed by castor oil, and afterwards had a blister applied between her shoulders.

18th. She has had much shooting pain in the right side of the head, and in the course of yesterday lost the use of her left arm three times, when her tongue appeared to her to grow thick. I ordered her head to be shaved, and a cooling embrocation to be applied, a blister to be placed between the shoulders, and a slight mercurial followed by castor oil to be taken every other day.

21st. Suffered a slight attack yesterday of giddiness and sickness, with loss of power in the left side. She continued much in the same way, with frequent attacks of loss of power in the left arm, and sometimes the leg of that side ; and she took camphor mixture with nitric æther, then the Peruvian balsam ; was cupped two or three times, and had blisters on the nape of the neck.

August 22nd. She began taking the *Solutio arsenicalis* of Fowler in doses of four minims in the infusion of cascarrilla, with a small dose of blue pill at night.

29th. She complained so much of pain in the right side of the head, just upon the parietal bone, that a blister was applied.

Oct. 17th. Of late the attacks have almost entirely left her, and she walks better than at any time since her first illness.

Nov. 18th. Having continued remarkably well, though her left leg is still very weak, she prefers leaving the Hospital for a time.

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Neither of these two cases was probably attended by rupture of vessels, but by great irregularity in the distribution of blood, and much nervous irritation and excitement, approaching in this respect to some forms of epileptic seizure. The well established power of arsenical preparations in various cases where the nervous system has suffered functional derangement, even when that has in part depended on structural change, led in both these cases to the hope that it might prove beneficial,—and the result fully justified the expectation. Nothing, however, is more probable than that some chronic cerebral change was causing pressure and irritation.

## GENERAL OBSERVATIONS ON THE FOREGOING CASES OF SANGUINEOUS EFFUSION.

THE cases of apoplexy and paralysis from the effusion of blood within the cranium, which have now been stated, form a pretty complete history of this frequent disease. In the first place, with regard to the subjects attacked, we see that neither age nor sex affords security; yet that in a number of cases, taken without any view to selection, a majority of men have been affected, and these chiefly above the age of forty, and many above sixty years of age: and this accords with the impression which general experience has left upon my mind. The personal appearance of those who have suffered has differed very widely; the spare and tall, as well as the short and robust, have been subject to the disease, but not in equal proportions; the plethoric frame certainly predisposes to that irregular action of the arterial system, and to that tendency to congestion on which apoplexy and paralysis so essentially depend. In a majority of the cases it will be found that irregular or intemperate habits of living have had a large share in preparing the way for the attack; and in several, accidental blows appear to have acted as strong predisposing causes. Anxiety, mental exertion, and sedentary habits, likewise decidedly predispose. Many severe attacks occur without any previous symptom sufficient to excite alarm; but much more frequently some subordinate seizures have been experienced,—momentary loss of consciousness, giddiness, slight defects in the sensibility of parts, frequent irregular or convulsive actions; and at other times, sensations of beating within the head, or peculiar noises, or defective vision. On inquiring into the previous history, we not unfrequently find that strong evidence exists of disease in the heart and large vessels, or of great obstruction in the lungs, or of such derangement in the kidneys as is calculated to interfere very essentially with the healthy discharge of the functions of other organs.

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When the decided attack has taken place, it varies greatly in extent and severity: sometimes it is attended with violent pain in the head; sometimes there is not the slightest pain; sometimes it assumes the form of complete

apoplexy, the annihilation of all consciousness, the extinction of all sensation, the loss of all voluntary motion :—for a few minutes, or a few hours, the retarded pulse bespeaks the difficulty with which the heart and arteries maintain by their involuntary actions the labour of circulation, and the stertorous sound or impeded breathing betrays the inactive condition of those muscular parts through which the involuntary powers are called upon to force the air in the process of respiration ; and these soon prove insufficient to maintain life. At other times the apoplectic condition, though well marked, gradually subsides ; or frequently the state of insensibility continues for a few minutes only ; while in some attacks the consciousness is never destroyed. But though the apoplectic state should not exist, or though the consciousness should have returned, yet if effusion of blood have taken place, paralysis will generally remain. The extent of this paralysis will vary almost indefinitely ; it frequently affects both the motion and the sensation of the same part : sometimes, however, the motion, and sometimes the sensation, suffers in the greatest degree ; and occasionally the sensation of one part and the motion of another are more strikingly influenced. Hemiplegia is by far the most common form which paralysis assumes from effusion of blood within the cranium. I have indeed never met with a decided instance of paraplegia from this cause : occasionally one leg or one arm will be affected, without the other limb on the same side suffering materially ; but those forms of paralysis, which occupy almost exclusively the two upper or the two lower extremities, very rarely result from the sudden effusion of blood in the brain. Cases occur where paralysis of the two lower extremities has appeared to depend on other disease or injury in the brain ; but of these we should always be somewhat sceptical, from the obvious sources of error to which they are liable ; amongst which, the unobserved or the unsought diseases of the spinal cord and its membranes are the most to be suspected. Defective articulation and deglutition, either alone or as attendants upon hemiplegia, are likewise common results of apoplectic seizures. Occasionally great pain is experienced in the affected limbs, while at other times a sense of numbness alone is felt. The powers of the mind generally suffer in some degree, but this varies greatly :—sometimes the mind evinces great irritability, and sometimes a childish tendency to excitement, and a trifling turn quite inconsistent with the former disposition or with the present situation of the sufferer :—at other times the

patient falls into a dull state of imbecility ; while cases occur in which the affection of the mind is so slight, that it is only by close examination it can be detected.

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It naturally arises as a question, What relation is to be traced between the various forms and circumstances of the disease, and the situation and extent of the effusion in the brain ? One fact is almost constantly observed, that the paralysis takes place on the side of the body opposite to the cerebral mischief ; though even to this rule we find one doubtful exception, in the foregoing cases (page 306). But when we attempt more minutely to determine the dependence of the symptoms on the pressure or injury of particular portions of the brain, much difficulty arises ; for the clot of blood which compresses one part greatly, will in an inferior degree produce pressure or injury in many parts, and hence the resulting symptoms must be complicated. The deductions which I have been able to derive from my own observation are few, and not sufficiently confirmed to be advanced in any other way than as hints for inquiry, or as confirmations of the observations of others, when they agree.

The effusion is very frequently attended with great pain when it takes place upon the surface ;—this, at least, was very decidedly observed in Cases CXXV., CXXVI., CXXVII., CXXVIII. ; and in the first two cases in a much more remarkable degree than is usual in apoplectic attacks.

The cases which have proved most rapidly fatal are those in which the effusion has taken place immediately or very quickly into the ventricles, as in Case CXXX. and CXXXI., and Case XIII. vol. i. ; and in general, those cases in which the blood has reached the ventricles, have early proved fatal in proportion as the flow of blood has been more or less direct into the cavities, varying from twenty minutes to ten hours in Cases CXXX., CXXXI., and CXXXXXII. ; but delayed to twenty-six hours, and even six days, in Cases CXXXIV. and CXXXVI., where the appearances after death rendered it probable that the effusion into the cavity had been much less direct : and the period of the fatal termination was prolonged even to twelve days in Case CXXXVIII., where there was little doubt that the small quantity of blood which was thrown into the ventricles was a completely secondary effusion.

Some cases of apoplexy are marked by much more tendency to convulsion than others are. In some of the most severely convulsed patients

effusion has been found in the ventricles (Case XIII. vol. i., and Case CXXXII. and CXXXIV.); but in two of these cases, in conjunction with this effusion, the *crus cerebri* and the *pons Varolii* had been lacerated (Case XIII. vol. i., and CXXXII.): and in one of the most remarkable cases of convulsion (Case CXXXIII.) no effusion had taken place in the ventricles, nor any injury to the parts just mentioned; but the effusion was close to the cineritious portion of the middle lobe of the cerebrum, on which the chief injury seemed to be inflicted. The connection between convulsion and injury to the cineritious substance will also be observed by a reference to Case LXIV. (p. 121), Case LXXXI. (p. 185), Case LXXXII. (p. 179), and Case CXLIII. (p. 301); and the same connection will be still further illustrated in many of the cases, particularly those of epileptic convulsion, which will be hereafter related, in this volume.

The articulation is very frequently affected after apoplexy, and this from different causes: sometimes it depends almost entirely on the paralysis of the muscles of the face; and then, by supporting the paralysed cheek with the hand, you partially remove the indistinctness of articulation; but in other cases the defect is in the muscles of the tongue and of the larynx, so that it is not possible to produce the sounds: in these latter cases, I have very frequently found that the injury has been situated so as to produce pressure or laceration of the posterior part of the *corpus striatum* (Case CXLI. and CXLII.); whereas, in other cases, where hemiplegia has occurred without the loss of power of generating sounds, this part has been free from injury or pressure (Case CLXIV.).

When the deglutition has been greatly affected I have found the *corpus striatum* injured, as in Cases LXXXV., CXLI., and CXLII.

I likewise find by examining the above cases since they were printed off, that a few of them assist in substantiating the remarks of Serres and Foville, who assert that the injuries inflicted on the *corpus striatum* and the anterior parts of the brain are followed by paralysis of the *lower extremity* of the opposite side, while injuries of the *optic thalamus*, or the posterior parts of the cerebrum, induce paralysis of the *upper extremity* of the opposite side, as in Cases LXXXV., CXXXVIII., CXLIV., and CXLVI.; and as I have in several cases observed that the speech has been most affected when the hand and arm have been paralysed, the remark I have made above upon the articulation derives probability from the observations of these pathologists.



The instances above adduced show how frequently in apoplectic cases the arteries of the base of the brain are more or less diseased, as marked by irregularities in their surface, and opaque and cartilaginous patches: it must, however, be borne in mind, that this condition of the vessels often occurs in elderly persons, where no symptoms have led to the knowledge of its existence.—Aneurismal enlargements are also occasionally found in the large arteries of the brain.

The effusion of blood within the cranium is in some cases from the vessels of the membranes and cavities, and in others from the vessels imbedded in the substance of the brain; and there is reason to think that it takes place in two distinct forms; sometimes by the rupture of a single large vessel, and sometimes by an hæmorrhagic effort influencing many small vessels, not improbably the termination and ramifications of one diseased trunk. That a single large vessel is sometimes ruptured, in the membranes at least, we have pretty good evidence in Case CXXV.; and that from certain causes of obstruction, numerous vessels will sometimes be forced to throw out blood, and thus the vessels going to certain parts will form small coagula in clusters, and partially break down the substance of the brain, will appear from the case of Stuve (Case XXIV.), as exhibited in Plate VI., and also from the state of the dura mater depicted in Plate XXXI. Fig. 1., from a drawing by my friend Mr. F. Giraud, taken from a female patient who died under my care with symptoms of cerebral pressure. We likewise often find the appearance of numerous small bloody points in the brain surrounding the apoplectic clot (Plate XXII.), but there is no doubt this might be a secondary appearance, resulting from the laceration of the substance of the brain, even though the original mischief were produced by the rupture of a single vessel: as it is not, however, universally present, I have supposed it possible that it depended on a certain hæmorrhagic tendency in particular cases (Case CXXXVI.), and the small subordinate clots, of which the apoplectic effusion is sometimes formed (Case CXXXIV.), seem to result from the same tendency to throw out blood simultaneously from many points.

The situation in which the effusion of blood takes place more frequently than any other is undoubtedly a little to the outside of the corpus striatum in either hemisphere, just at that part where many large vessels may be traced coming off from the trunks in the fossa Sylvii, and pervading the brain. These vessels may often be seen peculiarly turgid in cases of cere-



bral congestion without rupture (Case C.), forming numerous distinct spots in the horizontal section of the brain.

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The successive changes which take place in the effused blood, and in the portion of brain injured by the effusion, will of course depend in a great degree upon the concomitant circumstances of the patient.—In some cases, no effort at repair or restoration will be made, but the surrounding parts will gradually soften down; and even though there is no tendency to continued hæmorrhage, the mischief will increase, till some more extensive effusion occurring (Case CXXXVIII. Plate XXIII. Fig. 1.), the disease proves fatal. In other cases, the mingled mass of blood and comminuted brain will remain for many months, forming a soft mass, without there being apparently sufficient power in the constitution to produce either absorption or repair (Case CXLIV.). In other cases, it seems as if all the injured portions of brain separated, and a smooth surface formed, with more or less vascularity, derived partly from the natural vessels of the brain and partly from newly-formed vessels, and thus gradually a kind of cyst is generated as a lining to the cavity produced by the clot. Then a process of contraction and absorption goes on, till according, probably, to the greater or less powers of the constitution and the admixture of cerebral matter with the blood effused, either a small quantity of watery fluid remains, and this diminishing, the walls of the cavity at length coalesce, or a more solid yellowish-white substance interposes, forming a permanent cicatrix in the brain.

The period of time which these different changes require for their completion seems to vary considerably. In case CXXXVI., which proved fatal on the sixth day, a commencement was already made; greater part of the injured brain appeared to have separated from that which had suffered loss; a smooth and polished surface presented itself on many parts of the cavity, and the natural vessels of the brain appeared to have enlarged (Plate XXII. Fig. 2 & 3). In Case XXXVII., on the tenth day the clot had undergone considerable change in its colour, and with the broken cerebral matter was separating from the more sound brain. But in Case CXXXVIII., though twelve days had elapsed, no such favourable change had taken place; the broken surface was still soft, and the surrounding brain was ready to yield on every side (Plate XXIII. Fig. 1.). In Case CXL., where death occurred after twenty-three days, considerable change

had taken place in the surface of the cavity, but in some parts the process by which the injured brain is detached was not completed (Plate XXIV. Fig. 1.). In Case CXXXIX, seven weeks had passed between the effusion and the death; and here a very distinct lining membrane had formed, of an opake white colour, and so solid as to allow of being detached from the surrounding brain. In this case it was peculiar that this fine membrane should have formed, though the brain immediately exterior to it was decidedly unhealthy and discoloured; but it is possible this might in part have depended on subsequent mischief (Plate XXIII. Fig. 3.). In the same case a cavity was discovered, of a date much prior no doubt to that I have been mentioning, containing a clear fluid, and lined with a fine membrane, the opposite surfaces of which were beginning to form vascular adhesions (Plate XXIII. Fig. 2. g.): and very similar cavities were found in the case of Saunders (Case CXLIII.); but the date of these formations was likewise doubtful. In the case of Ore (Plate XXIV. Fig. 4.), after a lapse of eleven months, the small cysts were formed of opake white substance, and did not seem so far advanced as in Saunders. In Case CXLV., after about a year a cicatrix was formed a little soft in the centre, but apparently contracted round its whole circumference, and proceeding to the obliteration of the cavity (Plate XXIII. Fig. 4.). But in Case CXLIV., after an equal period, the soft and disorganized mass still showed no tendency to undergo a favourable change.

When the effusion takes place externally to the brain, it may be found either between the dura mater and the arachnoid, or it may be beneath the arachnoid, perhaps beneath the pia mater; and I believe we have instances of both their occurrences. In Case CXXIX. we have the distinct history of a sudden seizure, followed by continual tendency to hemiplegic weakness coupled with epileptic symptoms; and this patient dying after nearly three years, there was every reason to suppose that blood had been effused beneath the dura mater and between the two layers of the arachnoid, one lining the dura mater and one covering the pia mater,—and the change which had taken place during that long period was the absorption of almost every part of the blood, leaving only a deep carbonaceous stain (Plate XXIV. Fig. 3.), somewhat like what is found when from great irritation blood has been extravasated about the vessels of the mucous membrane of the intestines, or when blood has been long extravasated on the pleura or peritoneum. A similar appearance, to a less extent, was

observed on the surface of the medulla oblongata, in Case LXXII., where the patient afterwards died with extensive fresh effusion into the arachnoid.

When the blood is effused beneath the pia mater, separating it from the brain, I should suspect that if the vessels are completely separated for any considerable extent, the brain would necessarily suffer from want of nutrition. The only instance in which this seems to have occurred, is in Case CXLV. (Plate XXIII. Fig. 3.), where from the appearances we are led to conclude that the effusion of blood first took place in the substance of the brain, leaving the cicatrix, Plate XXIII. Fig. 4, and that it burst its way so gradually as to become insinuated between the cortical portion and the pia mater; and then the effusion being arrested, a change gradually took place in the clot, which formed a thin fibrinous cake close on the surface of the brain, sinking into the convolutions—and in this case a peculiar change had certainly taken place in the brain itself, for the cortical portion was not to be traced by its distinctive colour, indeed it seemed entirely lost. In Case CXXXI. the blood having been effused into the brain burst its way with so much violence as to tear through the membranes and flow out upon the surface of the arachnoid. Here however some appearance of ecchymosis was also traced beneath the arachnoid (Plate XXI. Fig. 1.).

It is not improbable that occasionally the choroid plexus is the source of the effusion of blood. Of this, however, I have no direct example to adduce, but I am inclined to believe that those rounded masses of a yellow colour which are sometimes detected in the posterior portion of the choroid plexus (Case CXXV. and Case XXVIII., vol. 1. Plate XIX. Fig. 4.) are the remains of sanguineous effusions which have fortunately proceeded to no great extent, and the blood has gradually undergone a change analogous to that of the blood effused under the pia mater in Case CXLV.

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In the treatment of Apoplexy, the most important point is the employment of bleeding; on the judicious use of which powerful remedy the cure greatly depends.

Bleeding may be used to remove the congestion in the brain—or it may

be used with a view of checking the hæmorrhage—or it may be used to reduce the general plethoric condition of the system.

When Apoplexy simply depends upon congestion in the brain, a large and free abstraction of blood, sometimes by emptying the vessels and allowing them to contract, effects almost an immediate cure of the disease; and hence, not unfrequently, we are led to the employment of bleeding under the hope that no disorganization may have taken place in the substance of the brain, though we have no certain indications from which to draw such a conclusion.

When rupture and effusion have actually taken place, and the slow and labouring pulse shows to what a degree the vigour of the nervous system has been depressed, it is still our duty to bleed, and to bleed largely. By small bleedings we shall be likely to do mischief, because by freeing the heart from a portion of that load which in its weakened state it can no longer move with rapidity and ease, we rather increase than diminish the chance of hæmorrhage, by increasing the force of circulation; and there is no doubt that in this way many cases of apoplexy have been rendered still more incurable, rather than relieved, by the moderate abstraction of blood; and many cases have survived where little or no blood has been taken. It would not, however, be justifiable to act on the latter hope: the apoplexy may depend on congestion and be actually curable by bleeding; or if it be otherwise, we may, by free bleeding, command the hæmorrhage which is going on within the brain. After the bleeding the pulse must be watched, and if it increase in rapidity, still maintaining considerable volume, we must bleed again; but if we find that after two free bleedings, in which we have abstracted probably forty or fifty ounces of blood, no decided benefit is derived, more particularly if we observe any failure in the powers of life, we must remember how greatly the system has been weakened by the shock which the very centre of the nervous system has sustained, and how much it behoves us to husband those powers on which the existence of the animal machine depends, and which, in many of the subjects of apoplexy, are already weakened by age or intemperance; and as one of the evils resulting from the unnecessary abstraction of blood, it often appears as if a tendency to serous effusion were generated, or where it previously existed was brought to light.

These considerations will render us more cautious in the abstraction of blood, though we must be always ready to meet by bleeding any such

aggravation of symptoms as bespeaks a recurrence of congestion, or a tendency to fresh hæmorrhage. When once the circulation has been restored to a more healthy condition, there is no good reason for persisting in depleting measures. We have now to support nature in her operations, and patiently to await the issue : the circulation must be preserved in a quiet and tranquil state, till the injury inflicted on the vessels is healed ; and the constitutional energy must be sustained, while a process almost analogous to cicatrization takes place on the surface of the cavity ; while the mass of brain mingled with blood is absorbed, and possibly while new cerebral matter is formed by a complicated process of absorption and deposit, which may perhaps distantly resemble the operations which pass beneath our eye when accident or disease has destroyed large portions of bony structure.

It is after venæsection has been fairly tried, or when fresh attacks are feared, or when the state of local plethora which often precedes the first attack exists, that cupping is employed ; and difficult as it is theoretically to explain the efficacy of abstracting blood from the small superficial vessels between the shoulders, as a means of unloading the circulation in the brain, experience certainly leads us to think favourably of the practice : but in urgent cases, by applying the cupping glasses either to the temples or on the space behind the ears, we may more immediately, and often very expeditiously, draw blood from arterial branches of considerable size, with the most decided benefit. The semi-recumbent posture, in preference to having the head placed low, and the free admission of pure air, without keeping the surface of the body below the natural temperature, may be considered important precautions in the treatment of the recent attack. How far the application of cold to the head is generally useful admits of some doubt ; as a means of checking hæmorrhage where it is taking place from parts which have strong sympathy with the skin or are almost continuous with it, we have the strongest proofs of its efficacy. Thus in epistaxis and in uterine hæmorrhages, the sudden application of cold to the external surface, and in some cases its continued application, produce the most favourable changes on the bleeding vessels : but in apoplexy, the circumstances are not exactly analogous ; and although where there is considerable action in the vascular system of the brain, whether from fever, from inflammation, or from excitement, the assiduous employment of cold is decidedly beneficial ; yet when the action is feeble or there is a tendency to delay in the circulation and probable congestion, there is danger of increasing that

tendency by the *continued* application of cold to the surface, and possibly a state may be induced, bearing a resemblance to the condition which the examination after death disclosed in an excessive degree in the case of Stuve (Case XXIV. Plate V. & VI.), and any approach to which would be most injurious in apoplexy. Where congestion exists, the *sudden* application of cold appears most desirable, and it might even check hæmorrhage when taking place in the substance of the brain; but employed with this view it would be hazardous, as by driving the blood from the external we might very probably throw it with greater impulse upon the internal circulation of the head, and rather increase than diminish the extravasation of blood.

Purgatives are of great importance in every stage of these diseases. It very frequently happens that the immediate cause of the attack is the neglected state of the bowels, and nothing tends more to favour cerebral congestion than a loaded condition of the alimentary canal. When the patient lies under the first impression of the attack, he is often quite unable to swallow medicines, in which case the oil of croton is the most active and appropriate remedy of this class. We should be careful not to administer calomel before the powers of deglutition are sufficient to ensure its being swallowed. I once saw most serious consequences result from this, for having put five grains of calomel on the tongue and attempted to wash it down with a cathartic draught, the calomel, instead of passing into the stomach, remained, moved about by the tongue, and produced in a few hours a most alarming ptialism, in which the tongue was forced out of the mouth, and it was necessary to scarify it deeply before it could be returned within the teeth. If however the patient can swallow well, a dose of calomel with extract of colocynth followed by castor oil is a very proper purgative. Cathartic injections may also be used with much advantage. In some cases, where the paralysis has been less complete, where paraplegia has occurred, or where there has been a combination of hysteric irritation with the paralytic affection, purging has sometimes been the chief means of cure.

Diuretics are likewise of great utility; indeed the importance of attending to the action of the kidneys may easily be inferred from the perusal of the foregoing cases, in which the connection between the apoplectic state and their defective action has been so frequently traced: and those who have seen much of diseases cannot be ignorant that even the undue retention of the urine in the bladder is liable to produce great cerebral disturb-



ance ; a fact which is proved continually during the prostration of fever, and in a still more striking manner by the state of coma in which strictures of the urethra and retention of urine often terminate.

Blisters to the nape of the neck and the counter irritation produced by the liniment of tartarized antimony or the continued discharge from a seton, often promote the cure when the first severity of the disease is passed away, and when we have reason to suppose that morbid action is interfering with the healing processes of the system.

The time, however, soon arrives when it is necessary to give tone and even to stimulate the torpid nerves, which appear in a certain degree, even after they may be considered as organically capable of resuming their functions, to continue inactive from habit ; and this is very much the case in the subordinate attacks of paralysis, where no very extensive organic lesion has occurred. It is at this period that the balsamic preparations are of utility, and that the mineral tonics are employed with advantage : the sulphate of zinc and the arsenical solution act occasionally very well. The *nux vomica* is a remedy which has long been employed during the state of nervous torpor which attends the tedious convalescence after paralytic attacks, and of late the more active principle of that drug, the *strychnia*, has been substituted : it tends to excite an action in the nerves, which, though not in itself a healthy action, may counteract the morbid state to which they are reduced. In a case of local paralysis, I have applied this powerful remedy in doses of the eighth, the quarter, or half a grain, to a blistered surface, with the effect of producing spasmodic action through the paralysed muscle, and I have sometimes administered it internally with advantage. But cases of hemiplegia from the rupture of vessels are not those in which this remedy holds out the greatest prospect of success, though with caution it may be employed in the advanced stages of convalescence with safety at least, and sometimes with benefit. Exercise of the affected parts and friction are of use ; and by degrees moderate and cheerful occupation of mind, avoiding excess and anxiety, will rather promote than retard recovery.

From the foregoing instances it will be perceived, that though sometimes very little previous intimation is given of the tendency to paralysis, yet the contrary is frequently the case, and that it often happens, that after one attack, the care to which the patient is subjected effectually keeps off future attacks for a great length of time ; now in these cases, there is every



probability that the same or similar precautions, adopted before the first attack, would have as effectually warded off that also:—hence the great importance of precautionary measures, which cannot be too urgently insisted upon by the physician, when he perceives his patients threatened, in the slightest degree, or even prepared for such attacks by a state of inactivity, or of increasing plethora; a restricted diet, abstinence from fermented liquors, and regular bodily exercise, adopted early, will preserve both mind and body in a state to which nothing can restore them completely after the attack has once occurred.

## CASE CLXII.

### *Apoplexy of the Spinal Cord.*

THE following case has been communicated to me by my friend, Doctor William Stroud, who has likewise shown me the morbid parts; and, as I have not myself met with other cases which have been proved by dissection to be apoplexy of the spinal cord, although several are on record, I shall introduce this case by itself, and in the words of Dr. Stroud, as a valuable addition to the present collection of facts.

“MR. BENJAMIN B, aged forty-eight years, rather above the middle size, of fair complexion, and sanguine temperament, was engaged during the greater part of his life in the mercantile marine service, performed many voyages to India and China, and in general enjoyed good health.—Returning from India in the beginning of the year 1812, he received a violent chill at the island of St. Helena, and was, in consequence, attacked with severe inflammatory rheumatism, under the effects of which he laboured for many years. His complaints assumed various forms of rheumatism, and gout; occasionally affecting the muscles of the trunk, both before and behind; and were attended with much disturbance of functions, and, particularly, with habitual costiveness, and other derangement of the digestive organs.

“After this voyage he abandoned the sea, took up his residence in a principal town of the West of England, and engaged in commercial affairs. But, his business not proving sufficiently successful, his health was, during several years, still further impaired by the corroding influence of care and anxiety; so that he fell into a declining state, attended with nervousness, increased flow of urine, and some degree of emaciation.

“At length, in the night of the 20th of April 1826, he sustained a slight paralytic attack, by which his mind and speech were a little disordered, and all the muscles on the left side were weakened. From the effects of this attack he never recovered; although, after the first shock, neither his articulation, nor his mental faculties were sensibly impaired; while the palsy, which was at first hemiplegic, but gradually

assumed the form of paraplegia, continued till his death, which took place about a year afterwards, on the 16th of April 1827.

"During the interval he had several minor attacks, chiefly induced either by mental excitement, or by errors in diet. They were attended with the usual symptoms,—pains in the head, back, and limbs, feverishness, and alvine disorder; and were relieved by the usual remedies,—cupping, blistering, purgatives, and a seton in the back of the neck; under the use of which he so far recovered as to have been enabled twice to perform, although not without difficulty, a journey of more than a hundred miles. During the last two months of his life the palsy rapidly increased; and ultimately, on its reaching the trunk, the use of the catheter became necessary. He had also a little sloughing about the nates, producing a degree of fœtor, of which, as a proof of the correctness of his sensations, he was conscious, and complained.

"The process of death, consisting in a progressive advance of the paralytic affection, was remarkably slow, having occupied a period of about thirty-six hours; within which, the powers of evacuation, speech, deglutition, the mental faculties, and the remaining muscular force, were successively extinguished. The respiratory function seemed to survive all the rest. As he sat in bed supported by pillows, the head and body vacillated from side to side; the breathing became laborious, and sometimes moaning, or stertorous; the eyes were half-closed, and had a wild and vacant expression; but, as long as the power of communication continued, he signified that he was free from pain and distress, and resigned to his approaching dissolution. A stupor of some hours immediately preceded death, after which the features assumed a placid, and intelligent aspect.

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"On the following morning the contents of the head and spine were minutely examined, when the following appearances were observed.

"With the exception of a little serous fluid between the membranes, and some congestion in the veins of the pia mater, the brain was sound. The disease seemed to have been chiefly seated in the coverings of the spinal cord, which exhibited evident traces of inflammatory action, although the cord itself presented no visible derangement.

"A considerable quantity of serous fluid, of a redder colour than that within the cranium, was found between its membranes; and the arteries of its pia mater, especially towards the lower end, were much injected. Within the upper dorsal vertebræ, on the left side, rather more than an inch in length, in the direction of the spinal axis, and about half an inch in a transverse direction, was an apoplectic cell, containing the red and broken remains of a coagulum; and, lower down in the spinal canal, the internal ligament was to some extent deeply marked by ecchymosis, as if in progress towards the formation of another similar effusion. The extravasation

appeared to have been wholly external to the cord, which was in consequence compressed ; but, as far as could be perceived, it was neither disorganized, nor inflamed. The coagulum seemed to be subjacent to the pia mater, and to be inclosed in a false, or adventitious membrane.

“ From these appearances it resulted that, in this case, hemiplegia of the left side had been occasioned by an apoplectic effusion on the same side of the spinal cord, and not, as had been supposed, on the opposite side of the brain ; although the right side of the head had certainly evinced a greater degree of arterial action than the left. This state of parts perfectly corresponded with the previous symptoms ; and, more especially, with the fact that the complaint was purely paralytic, and at last assumed the form of paraplegia ; while the senses, and the mental functions were not obviously impaired.

“ The connexion of this disease with the previous rheumatic and arthritic symptoms, often comprising lumbago, and spasms of the abdominal muscles ; as likewise, its dependence on mental emotions affecting the spinal cord rather than the brain, seem calculated, were the case fully considered, to furnish several useful, and interesting conclusions.

“ Thus, for example, it is evident that conditions purely nervous, and originating in long-continued mental disturbance, may, according to predisposition, induce an inflammatory, or hæmorrhagic state of the membranes investing the brain, or the spinal cord ; and that this state, operating through the medium of the nerves, may exert an extensive influence both on the solids, and on the fluids of the body. Under the exacerbations which repeatedly occurred in the foregoing case, the intensity of the secondary irritation progressively advanced, from itching and smarting, to severe rheumatic pain, chiefly between the shoulders, and on the affected side. The blood, at the same time, became buffy ; the bile dark-coloured, and concentrated ; and the alimentary canal abounded with acidity, and with a gas resembling carburetted hydrogen. Independently of disorder in the stomach and bowels, the tongue was liable to become red, foul, or parched, apparently in accordance with the state of the nervous system. The propagation of excitement from the left column of the spinal cord to the right hemisphere of the brain furnishes an interesting illustration of an occurrence, which usually takes place in the opposite order of succession ; and affords additional evidence that the corresponding halves of the central mass of the nervous system decussate in the medulla oblongata.”

## CASES

ILLUSTRATING THE OCCURRENCE OF PRESSURE FROM TUMOURS, AND OTHER ORGANIC CHANGES EITHER IN THE SUBSTANCE OF THE BRAIN AND SPINAL CORD, OR IN THEIR MEMBRANES.

### I. PRESSURE FROM TUMOURS.

#### CASE CLXIII.

*Partial Paralysis from a large Tumour attached to the Dura Mater and descending into the anterior lobe of the Cerebrum.*

A. Z., aged about 50, a man of a mild, amiable, and cheerful disposition, and of profound acquirement, had been for many years subject to severe attacks of sick-headache, beginning at the forehead, and frequently proceeding to the back part of the head; but neither in themselves continuous, nor leaving any ill effects behind them: he was likewise the subject of gouty attacks in the extremities. As long, probably, as fifteen years before his death, he had a small encysted tumour removed from his forehead, which healed up well, left a very slight scar, and never excited a thought, until his mind was turned to it by the inquiries put to him during his illness: and the same inquiries led to a knowledge of the fact, that five or six years previously he had received a blow on the head from the boom of a vessel, by which he had been stunned for a few seconds, but which left no complaints beyond the temporary inconvenience. The attacks of gout to which he had been subject were usually attended with most severe pain, and he had frequent recourse to the eau medicinale for relief. The last fit of gout was in 1823, and was attended with very acute pain, and left for a long time great tenderness in the instep of the affected foot, but no thickening or other sign of inflammation; and it has since occurred as a conjecture, whether this excess of pain might in any way have been connected with mischief at that time going on within the head. Long before that last attack of gout, at least two or three years, his digestion was bad, and his bowels habitually torpid, so that he uniformly paid great attention to his diet, and restricted himself to about two glasses of strong wine daily. Still, however, neither these symptoms, nor the headaches to which he was subject, assumed any important character, and he continued to mix in society with pleasure and animation, and played his rubber of whist with much skill and cheerfulness.—In the summer of 1824 his symptoms first began to excite some uneasiness; there was evidently an increasing indisposition and inaptitude for business, with a diminution of flesh and strength; and the pursuits in which he formerly took pleasure no longer engaged his attention, or afforded him any gratification; and it was observed that he occasionally fell into a state of abstraction even when surrounded by his friends.—The disinclination to business increased progressively during the autumn of this year, and his inactivity became apparent to every one; it was with difficulty he could be induced to rise from

his bed, so that it was frequently the afternoon before he left his chamber; and though he freely admitted the absurdity of giving way to such habits,—which he confessed arose more from disinclination than inability,—yet he refused to make any promises of change. At this time his nights were often sleepless, or rendered unrefreshing by harassing dreams, and in the day his mind appeared unsettled: he frequently insisted on walking out quite at the close of the evening; and although all sudden noise and bustle were distressing to him, yet it was with difficulty he was dissuaded from visiting the theatres.

During this period all his senses appeared to be accurate, though perhaps more enfeebled than they would have been in a healthy state of the nervous system; there was certainly no dilatation of the pupil, and no fullness of the vessels of the conjunctiva, nor sense of heat about the head; on the contrary, the countenance was pallid, and the skin was in that state of dryness and torpor which was always habitual to him. Nothing of a paralytic character was noticed in his speech, nor anything unusual in his gait; but he himself spoke of having his head drawn towards his shoulder. His pulse was soft, regular, seldom above 72, and rather feeble than otherwise; and on one occasion, when leeches were applied to his temples, not only had no relief been afforded, but a great sense of debility followed, and an erythematous or cedematous puffiness of the cellular membrane about the eyes had been the consequence.

In January 1825 I first saw this gentleman as a patient; at that time the long continuance of his bodily weakness, and his mental failure, and their gradual increase, had begun to inspire his medical attendants with a fear that chronic organic disease might be taking place: he was perfectly collected, and able to answer questions, but he was unwilling to do so; would sit on the sofa and read the newspaper without paying any attention to it; said that he felt occasionally as he sat a tendency to be drawn to the left side, or rather to give way on that side: he could walk across the room quite alone, but sometimes could not direct his steps, and sometimes rather ran than walked: he could still play cards with his family for amusement in the evenings. Occasionally he had headache, and now and then became very drowsy for a day or two together, pointing, when asked, to his forehead as the seat of pain. At this period he would sometimes become very irritable, and almost irrational on some points; more particularly, he would often call for his great-coat and insist on going to the theatre, and it was scarcely possible to prevent his going: it was obvious that from month to month he became more infirm, although at times the drowsy fits passing away, or other casual ailments subsiding, seemed to give hope that a favourable change was taking place.—It was remarked that he became more and more helpless, and more absent every day; for many months before, he had sometimes been so absent as to stop in the street looking at indifferent objects for a long time together, and by this means probably arrive an hour after the appointed time at a dinner-party; at other times he would sit after dinner, taking his wine with one or two familiar friends, without speaking a word, which was quite con-

trary to his usual habits.—He would now sit for hours together totally unoccupied, and without saying a word; and he not only rose very late, but would frequently spend two or three hours in dressing.

In the summer of 1825 he went a short distance into the country for change of air, and could still walk a little in the garden with assistance, but was generally wheeled about in a chair; the sphincter of the bladder had also lost its power; he could scarcely be induced to read even the newspaper, but always came down stairs and dined with his family. Towards the end of the summer he was moved nearer to town. On one occasion of particular drowsiness, a blister was applied to the whole scalp, which produced erysipelas of the face, and stranguary, and a violent spasmodic shaking of the left hand: for a day or two it was thought that the blister had done him good; and at that time some inflammation appeared in the foot formerly affected with gout, which was hailed as a good omen, but it soon went off again.

In the winter of 1825 he returned to town, and scarcely from that time left his room; he became perfectly helpless, was fed, dressed and undressed, like an infant, lay almost always on the sofa, was conscious of those around, and very thankful for the care taken of him, which he sometimes expressed by a short sentence in a whisper; yet at intervals he became very irritable; he sometimes had drowsy fits or complete coma for twenty-four or forty-eight hours, with an approach to stertor, and could scarcely be induced to swallow anything; and when he had been roused for a moment, he fell off again into deep sleep; often the left leg was spasmodically moved, or the knee drawn up: when he was a little better he would have his eyes open, and appear to notice, and slowly to answer, but would often wander completely, so that he imagined a thousand incoherent things, particularly fancying he had seen persons of distinction and public characters, who had never been near the place, and constantly saying that he was going out to dine with some one. Sometimes a degree of strabismus was observable, and slight distortion of the muscles of the face; and the deglutition was often so troublesome, that it was with the utmost difficulty sufficient could be swallowed to sustain life; and after each mouthful a violent effort of choking, with cough, threw it all back again. The pulse was variable, but usually quick and weak; and the tongue, which for years had generally been foul, and often had a thick stripe of dark fur towards the base, became loaded in a most extraordinary manner with a thick olive-coloured coating.

For many months before death the sphincters relaxed involuntarily, or no intimation was given of the wants of nature, which were only guessed at by the attendants. At this time, while lying constantly on the sofa, a complete change took place with regard to the action of his skin; for instead of being dry, he began to perspire profusely, and this continued frequent for several weeks.—We sometimes thought that the left hand and leg were to a certain degree paralysed; but if this were occasionally the case, it was not permanent, though they had not the same power as the right: it was not



uncommon towards the latter months, for him to lie quite motionless almost a whole day, and he scarcely made the slightest effort to assist himself into his bed.

In the month of May a physician, who now saw him with us for the first time, still entertained hopes that effectual assistance might be given by a system of daily purging, and the constant application of cold to the head: but after continuing this treatment for five weeks he was evidently rendered more feeble, and we were induced to administer the purgatives less frequently.—One day in the latter end of June or the beginning of July, I had seen him about six o'clock in the afternoon, and found him rather languid, but there was nothing which indicated any important change: he went to bed as usual about eleven o'clock; and at one, those around him were disturbed by his stertorous mode of breathing, to which followed excessive convulsion.—I was called, and found him suffering under a severe epileptic attack, with quickened circulation, and evidence of great determination of blood to the head, and congestion.—After three hours spent in this most dreadful paroxysm, threatening life every minute, he was gradually brought to a state of quiescence; but he never appeared to recover even his former degree of consciousness, though he survived for about thirty-six hours, when he gradually sunk.

#### SECTIO CADAVERIS.

On removing the skull, the vessels of the dura mater were rather turgid; and raising the membrane it was found to adhere to the parts below on the anterior portion of the right hemisphere of the cerebrum, more particularly about an inch from the front near the longitudinal sinus, where the adhesion was perfect, with an appearance of vessels radiating over the hemisphere. The surface of what appeared to be brain at that part was obviously changed, looking opaque; and on being felt gave great resistance, and was perfectly firm and hard: it proved on further examination that this was the surface of a circumscribed tumour, which extended backwards nearly four inches, and sunk into the hemisphere, so as to reach nearly to the ventricle, pressing the anterior part of the corpus striatum before it. The tumour was lobulated on its lower or internal surface, and was covered with vessels; and there was a small space containing a serous fluid beneath it, forming an insulating bed, by which it was separated from the thin layer of brain interposed between it and the ventricle. The tumour being cut into, was one uniform substance, like a newly-made cheese or a mass of curd, but affording much resistance, and showing some marks of a lobulated structure; it weighed



nine ounces (Plate XXVI. Fig. 3. & 2.). The other viscera of the body were perfectly healthy.

The remedies which were employed during the long continuance of this disease were of course various. The loss of blood by cupping was each time followed by a remarkable return of drowsy days, so that it was not often repeated. Leeches to the temples gave no relief; blisters to the nape of the neck, and a seton kept discharging for months, did no good; the tartrate of antimony in the form of liniment was freely tried without any benefit; blisters were twice applied over the whole scalp; purgatives were constantly employed to regulate the bowels, and latterly were used in a more active way; various tonic remedies were adopted, and amongst these a long and careful trial was given to the quinine. At the suggestion of Mr. John Pearson, an attempt was made to bring the skin to a more active state by means of a steam bath, the effect of which was certainly to produce diaphoresis: but an excessive flushing of the countenance with great cerebral congestion was induced, and obliged us to relinquish the remedy.

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In this interesting case we have the complete history of the effects of chronic disease producing gradual pressure and frequent irritation on the brain. So insidiously did it approach, that for many months hopes were entertained that the symptoms might rather be regarded as depending upon derangement of function than as arising from organic disease. It is not necessary to recapitulate the progress of those successive steps by which the mind became weakened, the temper altered, and the powers of body destroyed; by which a vigorous, a truly amiable, a learned and an accomplished man, gradually lost all but the occasional gleams of a sweet disposition, and sunk into the grave, after the powers both of body and mind had been extinguished. The growth of this tumour was so gradual that it produced no sudden shock, no apoplectic stroke, no decided paralytic seizure; it scarcely affected the substance of the brain, except as an external source of pressure, till towards the conclusion of the disease, when possibly the surrounding portions of the brain became slightly disorganized, and more urgent symptoms, amongst which were epileptic seizures, occurred. In many of the symptoms a very strong analogy may be traced between this case and that of Grayer (Case LXXXV.): there was the same absence of mind; the same tendency to muse; the same confusion between

circumstances and people present and absent ; the same tendency to paralysis without decided local loss of power ; the same relaxation of the sphincters, and the same comparative freedom from hesitation of speech. The symptoms were so analogous, that I had anticipated that in the case of Grayer we should find disease of a similar kind or similarly placed. This was not indeed exactly the case ; still however there was a similarity, inasmuch as in both, the mischief was placed in the anterior lobes of the brain ; and in both, the anterior part of the corpus striatum was the part more particularly injured. How far this may be connected with the peculiar character of the mental affection, I can only propose as a subject of inquiry. It is likewise worthy of remark, that in neither had the posterior part of the corpus striatum suffered, except from the general pressure, which accords so far with the hints I have thrown out above (page 330.) with regard to the connection of lesion of that portion of the brain with defective articulation.

The tumour was a growth from the dura mater, or rather perhaps from the arachnoid lining the dura mater. This is a form of tumour by no means uncommon, and is generally considered to be of a fungoid character, though apparently of very slow growth, and it is lobulated in its structure. (Plate XXVI. Fig. 2.) In the same plate (Fig. 4.) I have represented the same disease from a preparation in Guy's Museum : it is at a more early stage of its progress, and had, I believe, produced no marked symptoms. In this plate (Fig. 1.) is likewise another specimen of the same or a very analogous disease, taken from a patient whose case I shall introduce under the head of Epilepsy, because the symptoms of irritation had there borne the most prominent part during life, producing decided epileptic seizures. The great size to which the tumour had attained, will perhaps sufficiently explain why pressure was the leading feature in the case more immediately under consideration, and the more intimate connection with the brain and its membranes will probably account for the prevalence of irritation in the other case. In both it would appear that the great aggravation of symptoms leading to the fatal termination, was connected with a softening and a watery infiltration of the brain in the neighbourhood of the tumour.

## CASE CLXIV.

*Tumour formed by Disorganization of the Brain causing Hemiplegia.*

ALEXANDER SANGSTER, aged 45, had enjoyed general good health ; but was said to have been much affected by the death of his wife, about a year before, since which he had not been considered in health.

About the 25th of November he complained of an unpleasant sensation in the crown of his head ; his stomach was disordered, and he had symptoms which were ascribed to a bilious attack and indigestion. At this time he had a slight numbness in the right arm. On the 28th he took purgative medicines, which operated freely. On the 29th he was exposed to the damp weather, and in the afternoon he complained of being very unwell, and had almost lost the use of his right leg and thigh and his right arm. On the 30th he was confined to bed, and during the day was delirious. On the 1st of December he was much deranged in his intellects, and complained of pain in the crown of his head ; he had no acute pain in his temples, nor in his right leg, thigh, and right arm, although he was unable to use them. On the 2nd he was cupped and purgative medicine ordered, but he was in so complete a state of delirium that he could not be prevailed upon to take it. On the 3rd, during the day, he was almost insensible, and in the evening took a dose of castor oil which operated freely. On the 4th he was quite insensible ; no medicines were administered : and on the 5th he was admitted into Guy's, at which time he was incapable of giving any account of himself or his feelings ; but the paralysis of the right side appeared almost complete, and he wore an aspect not unlike one affected with fever ; he seemed weak and exhausted.

Applicentur Hirudines octo temporibus.

Admoveatur Empl. Lyttæ nuchæ.

Habeat Hydr. Submur. gr. j. et Julepum Ammoniæ Acetat. quarta quaque hora.

6th. Pulse 78, weak and somewhat indistinct ; he is more sensible than yesterday, but the paralysis is as complete.

Repetatur Hydr. Submur. gr. j. quarta quaque hora.

Injiciatur Enema vespere si opus fuerit.

7th. Pulse 79, less indistinct ; respiration natural : he appears as in a tranquil sleep. Tongue moist, and there is no sordes about the teeth. His stools and urine have been passed in bed.

Repetantur Hydr. Submur. et Enema Cathart. pro re nata.

He remained in much the same general state,—in which it was difficult to say whether he was aware of the questions put to him, for several days, and then seemed to rally, so that he was able to swallow his food, and slowly and indistinctly to

answer Yes or No; and open his mouth and even protrude his tongue; and on being asked if he had any pain, would slowly and hesitatingly raise his left hand to his forehead. He improved so much, that for about a week before his death he conversed slowly with the nurse, and gave directions which of his relations who came should be allowed to trouble him and which not: and he intimated his wants so as to be taken from bed or have the night-pan given him when requisite.

This state of improvement lasted but for a few days: he again became weaker; and one day, when taken from his bed to have it made, he was seized with a fainting fit, in which it was thought he would have expired; he survived, however, three or four days after that, in a state of great prostration and in a state approaching to coma, and on the 31st of December about five o'clock in the morning, he died.

#### SECTIO CADAVERIS.

The examination took place eight hours after death.—The whole body was greatly emaciated. The dura mater presented no remarkable appearance, but on raising it on the right side a very marked and considerable serous effusion was found under the arachnoid, so that the serum filling up the spaces between the convolutions separated them more than natural, and on being let out by a puncture, the convolutions were accordingly seen, looking small and raised; and in one or two parts was a slight appearance of a sanguineous tinge, diffused under the membrane. On raising the dura mater from the left hemisphere of the brain, it adhered slightly on the posterior part, rather towards the inner side, so that a very small portion of the brain tore away with it. This portion was of a yellow semi-transparent appearance, and formed the centre of a space about an inch and a half square, which was completely discoloured and diseased, looking like a bruise, and many vessels were seen converging towards it. The convolutions of the brain in this hemisphere were altogether as remarkable for their flatness and unusual width, as those on the other hemisphere were for being in a contrary state. The division into convolutions was almost lost, and the whole of the posterior lobe of the hemisphere gave to the touch the sensation of being filled with a fluid. There was little or no effusion under the arachnoid. (Plate XXVII.) A section of the left hemisphere was then made horizontally, about half the usual depth of the ventricles, passing through the middle of the discoloured portion: in this section nearly half of the whole surface appeared implicated in the disease. A bloody mass, which might possibly be the remains of a clot of blood

but much altered,—hard and resisting like fibrin, and irregularly surrounded by a firm substance, which was in some parts semitransparent and in small portions almost resembled the cartilaginous texture of scirrhus glands,—was cut through, and was found to correspond with the purple spot seen externally on the convolutions. The whole of this diseased and morbidly hardened mass was surrounded by a yellow transparent semigelatinous substance, intersected by fine bands of whitish membranous filaments. This section also opened into a cavity in the anterior end of the diseased portion, which passed down under the hardened mass and was filled with a clear yellow fluid resembling oil rather than serum, and coagulating by heat;—whether it communicated with the ventricles could not at present be ascertained, but it was afterwards found that it did not. Although the diseased mass came quite to the surface in some of the parts discoloured externally, yet in other parts a small layer of medullary matter, partly marked by bloody points, lined the cortical portion, and the extent of the disease was bounded towards the anterior part by a natural division in the convolutions connected with the fissura Sylvii. (Plate XXVIII. Fig. 1.)

Another horizontal section was made, even with the roof of the ventricle and exposing the corpus striatum and optic thalamus. This displayed nearly the bottom of the diseased part, where a small portion of a membrane was seen forming the lower part of the cavity which had contained the serum, and on this membrane a fine vessel ramified. The whole of this was yellow, and was covered with yellow serum. About half an inch round was a gray, softened, pulpy portion, in which numerous bloody points of cut vessels were seen, and these increased greatly while the parts were exposed to be drawn. Many of these vessels followed the knife as it divided the soft part, lying like fine lines upon the cut surface. The softened portion extended to the ventricle, but the natural membrane lining that cavity prevented any communication. (Plate XXVIII. Fig. 2.)

In order to see the exact extent of the red hardened mass, (Plate XXVIII. Fig. 1. c.) a diagonal section was made perpendicularly in the direction of its longer axis, which showed that it bore but a small proportion to the whole disease, and it had none of the characters of a clot of blood, but was firm, like fibrin, and the surrounding part was remarkably hard and resisting. A portion of this diseased mass, with the connected brain, was afterwards macerated in water for ten days; and water being

then poured upon it in a stream, the whole of the cerebral matter separated completely, and left the diseased mass a firm fibrous substance in the centre, and certainly not deposited in layers; but all the loose portions appeared to form a fine fringe when floating in water, and looked like a number of fine vessels going to the part, not very unlike in appearance to the tunica decidua of the ovum. A few vessels, still holding red blood, were seen running through the mass.

The right hemisphere of the brain was quite healthy, and the ventricles on either side contained but a small quantity of limpid fluid. The vessels at the base of the brain were remarkably free from the slightest disease.

The chest, when opened, showed both the lungs completely collapsed and much marked by the gray deposit common in elderly persons. The left lung adhered slightly at the apex, and had at that part two or three small hard bodies, of the size of peas, not decidedly tubercular. The right lung presented, at first view, the same appearance of health as the other; but on lifting it, it soon appeared that considerable pleuritic inflammation had existed; and that the lung adhered slightly in one or two places, about the size of a shilling, in the lower lobe, to the pleura and the diaphragm; and when these parts were examined, a thin layer of fibrin was found, and the lung was soft and dark coloured; and on cutting in, the part underneath had gone into complete suppuration, giving out a puriform fluid mixed with blood and dark green matter, affording a most offensive smell. These abscesses, each less than an inch square, seemed to be partially surrounded by a layer of fibrin, forming an imperfect cyst. The surrounding lung was not hepatized, but was of a dark colour and quite unhealthy appearance: although three of these abscesses approached close to the surface, yet there was a fourth, which was at least an inch from the surface, in the substance of the lower lobe. The heart was remarkably small and thin in its parietes, but otherwise not unhealthy. The valves sound. The liver was small and soft; intestines healthy; gall-bladder full of very dark bile; spleen peculiarly small; kidneys very healthy.

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In this case it is probable that chronic disorganization had been going on for several months, and that the symptoms which occurred about the 25th of November and for some days after, arose from some fresh action, perhaps of an inflammatory kind, taking place about the disorganized



portion, and the products of that inflammatory action served to aggravate the original disease and induce a fatal termination; and perhaps the softening of the cerebral matter which surrounded the tumour had an influence in producing the hemiplegia which marked the latter days of life. The lungs were in a state of gangrenous suppuration, a process favoured by the weakened state to which the patient was reduced by the cerebral disease.

### CASE CLXV.

#### *Tumour formed by Disorganization of the Brain causing Hemiplegia.*

I WAS called to see — Acus, aged 68, on the 29th of July, 1830. I learnt that for many years past he had suffered from great drowsiness in the evenings, and when any thing had alarmed or surprised him he had been agitated and nervous and his legs had shaken in a remarkable way. For the last two or three years he had frequently experienced vertigo, so that he had been obliged to lay hold of something in passing through the streets, to avoid falling; this had gone off in a few minutes, and had occurred more in hot than in cold weather;—during the last two or three months he had suffered much from headache. On the 11th of this month, at eight o'clock in the morning, he had just gargled his throat, and when throwing his head backwards had felt giddy, he went to the water-closet, and in an instant fell into a fit, with great convulsion: he lost his consciousness for a short time, and when he recovered he was hemiplegic on the left side, but the leg retained some power. He was seen by Mr. Wigham, and as his pulse was feeble it was not thought right to bleed him; but by mild treatment he partially recovered, and could even converse cheerfully, and was able to walk across the room with a good deal of assistance. But on the 23rd, after a brisk purgative action, he became much worse, without having had a fit, and continued so when I first saw him on the 29th, at which time he was lying in a very torpid state, but was sensible when roused, knowing me and shaking my hand. His left side was paralytic, both the hand and arm were totally motionless, nor had he any power to support himself with the leg of that side, though he could raise it, and he moved the toes freely. The sensation of the hand was also greatly impaired; the other parts retained a good deal of feeling; the mouth was drawn. With regard to the right side, it appeared quite under his command when he wished; but in general his hand was moved about as if he were scratching his thigh, and his foot was frequently drawn up and down in bed. Pulse feeble and rather frequent.

Applicentur Hirudines x temporibus et Embrocatio communis fronti.

Habeat Misturam ex Infuso Gentianæ Comp. et Tinct. Aloes.

July 30th. I found him much rallied, so that he talked to me respecting his feelings



freely and sensibly ; in a moment his eyes became fixed and he was evidently lost, but the cloud soon passed away. Tongue covered with aphthæ.

*Repetantur Hirudines temporibus, et Mistura.*

July 31st. Sensation of the left hand rather increased.

During the next week very little alteration could be perceived ; but some days he was quite cheerful, though on the whole he lost ground and his nates began to excoriate.

August 11th. He frequently wanders in mind, and talks quite incoherently ; he has some difficulty in protruding his tongue, and often seems to choke when he attempts to swallow : he is still at times very cheerful.

13th. He was quite sensible all yesterday, but in the evening became lost, and never recovered his consciousness, lying with his right hand and leg in almost constant motion. On the morning of the 14th, at ten o'clock, without having suffered any fresh attack, he died, some convulsion attending his last moments.

#### SECTIO CADAVERIS.

The dura mater adhered firmly to the skull : it did not appear that any remarkable quantity of serum lay under the arachnoid. The pia mater was generally loaded with blood ; the convolutions on the middle of the right hemisphere were decidedly flattened, and on attempting to take off the arachnoid, this part was evidently softer than the rest. The middle lobe of the cerebrum on the right side was now found to be completely diseased, having in it two hardened masses, one of the size of a nutmeg, the other of a London plum, which did not freely separate from the brain as a fungoid tumour often does, but seemed to pass into the surrounding cerebral substance in many parts, while in others, owing to the completely softened state of the brain, it separated with comparative ease. The smaller of these tumours was almost on the top of the hemisphere, the other was nearer to the fossa Sylvii ;—they were both in structure the same, the greater part of a light lilac tinge, with many points occasioned by divided vessels, but in the centre was an irregular mass of a light straw colour, which for a moment I took for pus, but soon saw my mistake on perceiving that though the whole tumour was as firm as an enlarged absorbent gland, this yellow part was still firmer. Some considerable portions of the brain on the inner side of the tumours approached to the same hardened condition as the tumours themselves, and cut with a very unusual tough resistance, presenting many fine points of divided vessels. The parts of the middle lobe external to the tumours were in a state of decided “softening,” of a

custard-like consistence and colour, as in the case of Sidney (Case LXV. Plate VII. Fig. 1.). The fornix was also very soft, breaking down under the touch, but of its natural colour. The corpora striata and optic thalami natural, and not encroached upon by the disease. The arteries at the base were slightly cartilaginous, and the left vertebral artery not above one-tenth the size of the right. I could not obtain a drawing of the tumours, but they bore the strongest analogy to that of Sangster (Case CLXIV. Plate XXVII. & XXVIII.), and I have no doubt were of the same nature.

The only observation which could be made upon the left hemisphere was, that it exhibited many points of divided vessels; the cerebellum and the medulla oblongata quite natural.

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In this case, I think there is no reason to doubt that these tumours had been of long standing, probably gradually increasing for many years, giving rise to frequent irritation, and occasionally to pressure. They were evidently vascular, and probably at times admitted a considerable quantity of blood into their structure.—We cannot suppose them to be the vestiges of blood effused at the period of the fatal attack, as the time would not allow of such complete change and organization; but it is not improbable that the original exciting cause of the morbid action producing these tumours was a slight effusion of blood: the central irregular nucleus of yellow hardened matter might have been occasioned in this way; its appearance would rather justify the supposition, but no proof can be adduced:—it seemed to me that the disease was progressive, and that the surrounding parts of the brain were gradually involved.—There is reason to believe that the sudden hemiplegic attack depended upon the more extensive softening which took place around the tumour. Thus this case bears in many points the strictest resemblance to the last related, and I consider the two diseases to have been of precisely the same character. I had been led to conjecture that the disease, whatever it might be,—and I thought it probable that it was rather change of substance than effusion of blood,—would not be found to encroach upon the posterior part of the corpus striatum, simply because the articulation had not materially suffered. (See page 330.)

## CASE CLXVI.

*Stupor, and other symptoms of Pressure, without Paralysis:—two or three hard Tumours in the anterior lobe of the Cerebrum.*

THOMAS CHANDLER, aged 49, was admitted into Guy's Hospital, under my care, August 27th, 1828, with severe cerebral symptoms. His occupation had been that of a groom, and he was supposed to have received some severe blows upon the head at different times, and was reported to have been subject to some headache even from his childhood. About nine months before his admission he was observed to be drooping, complaining of headache, principally in the forehead, and giddiness, from which he nearly fell to the ground. About four months ago, the pain in the head became more urgent, with some delirium; but one bleeding and leeches seemed to relieve him: he was in the London Hospital for a fortnight, and resumed his work for three weeks, when headache and giddiness returned.—For the last three weeks he has been much worse, being constantly drowsy, but perfectly placid and conscious when roused.—A fortnight ago he was observed to drag his left leg, which is still occasionally the case; he has had no other paralysis; has had no sickness, and denies every pain. Speech distinct: pulse 42, weak; pupils contracted; bowels relaxed; urine copious; tongue clean and moist; for a day or two the stools and urine passed unconsciously in bed.

Habeat Hydrarg. cum Cret. gr. ij bis die.

Habeat Misturam Cretæ cum Confectione aromatica ter die.

29th. Very heavy to sleep; some pain in the head; had a good motion to-day, which together with his urine was passed unconsciously in bed. He is able to walk, and no paralysis is discoverable.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒvj;

Habeat Empl. Cantharidis inter scapulas, postea.

Repetantur Medicamenta.

Sept. 1st. Decidedly more sensible, and more capable of making some exertion.

3rd. He generally lies on his left side, but occasionally on the right; he sleeps most profoundly, without any stertor. Pulse 36, when sleeping; respiration 14; for the last twenty-four hours has passed neither urine nor stools in bed, but has helped himself to the night-chair.

5th. Passes fæces and urine in bed; appears scarcely sensible; not the slightest derangement can be traced in the action of the heart; both the auricles and the ventricles are distinctly to be heard.

6th. He was sick at the stomach last night: pulse 44; more cheerful and more sensible.

Blisters were several times applied to his neck : he took a single grain of calomel three times a day for some time, and his bowels were regulated.

19th. Pulse 59 : he is constantly drowsy : the urine and fæces are passed in bed, not unconsciously, but from loss of power over the sphincters.

Oct. 3rd. Pulse 60.

Oct. 9th. Pulse 78 : he is able to walk about, but still passes his urine and fæces in his sleep.

10th. Occasional slight incoherence, but not to any great extent ; his bodily strength improved, and he gets up, walking about all day.

In this state he left the Hospital and returned to his friends. Little alteration took place till July 1829, after which he was confined to his bed, becoming more and more helpless, and requiring to be fed ; and owing to the dirty and wet condition of his bed, extensive sloughs took place on the nates, which were the immediate cause of death on the 12th of January, 1830.

#### SECTIO CADAVERIS.

The body was greatly emaciated. On examining the skull externally, there appeared to be some irregular bony deposit about the occipital bone ; the skull throughout was very thick and heavy ; a slight serous effusion had taken place beneath the arachnoid. The arachnoid was slightly opaque, and there was rather more adhesion than natural between the two hemispheres of the cerebrum ; in other respects, both the membranes and the general substance of the brain were healthy : but on attempting to raise the brain from the basis, it was found that a strong adhesion had taken place between the dura mater and the skull for an extent of half an inch, and between the same membrane and the arachnoid covering the brain for a less extent ; and this adhesion was so firm as to require careful dissection to separate it from the bone, and the membrane could not be pulled from the brain without producing laceration. This adhesion was situated on the right side of the anterior lobe, at the outer angle of the orbital plate, on a line with the sella turcica, attaching the membrane therefore to the posterior, inferior, and lateral portion of the central lobe. The brain itself was diseased at this part, having two or three indurated portions of about the size of small beans, and one as long as two French beans, formed rather superficially, but sinking in to the depth of a quarter of an inch : these externally looked like scrofulous tubercles, but on further examination did not appear to be independent formations, but rather to result from change of structure in the brain ; for

they were not separable from the surrounding brain, as scrofulous tubercles usually are, but were completely incorporated with it, destroying in that part all appearance of cineritious substance (Plate XXIV. Fig. 2.). The ventricles contained nearly two ounces of limpid fluid; and this had evidently been effused some time, as the whole seemed permanently dilated, and the septum lucidum was stretched to a great length, and the foramen of Monro was very large.

The lungs were perfectly healthy, except that the right was attached by firm cellular adhesions to the ribs. The heart was very small; the right ventricle rather thin; the valves all perfectly healthy. The liver quite healthy. The spleen small and flabby. Kidneys slightly mottled.

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The tumours in this case were probably the result of some former injury, which had caused disorganization of the brain or effusion of blood; and from the long continuance of the symptoms, and the way in which they were aggravated from time to time, it appeared that morbid action was occasionally excited in the brain by their presence, which again subsiding, left only the chronic disease. It is not improbable that the more hard and yellow nucleus of the tumour in the case of ACUS (CLXV.) was of nearly the same character.

I am not quite certain whether either of the tumours which I have described or referred to in the last four cases, corresponds exactly with the albuminous tumours and deposits mentioned by Dr. Abercrombie (page 314, 315.), but the three last seem to belong to that class of disease.

### CASE CLXVII.

#### *Scrofulous Tubercles in the Brain producing Paralysis and great irritation.*

AMELIA HUMFREYS, aged 11, was admitted, under my care, into the Clinical Ward, November 4th, 1829. She had been a delicate but healthy child till five months ago, when she had a fit at school, from which she has never completely recovered. The probable occasion of the fit and the particulars attending it could not be ascertained either from the child herself or her friends: it was stated, however, that a fortnight before the attack she had been observed to be dull and moping, not associating with her playmates as usual. She was leeches and blistered on the head, and had so far got the better of the ill consequences of the fit, that on coming home a month after, she was able to feed herself, and walk with but little assistance: she relapsed, however, a

fortnight after, and fell into the same helpless state in which she was at the time of her admission to the Hospital.

Nov. 4th. She has no power of moving the left leg, which is stiff, cold, shrunk, and firmly extended, with the foot drawn inwards; the skin dry, rough, and scaly: the right leg is similarly affected, but in a less degree: they are both sensible to the touch, and she cries if they are pinched. The use of the upper extremities is impaired, but not lost; and a spasmodic action may be seen in the right arm, occasionally, with shaking and tremor: the back is stiff and rigid; the fæces and urine pass involuntarily; the aspect indicates suffering; and the cerebral irritation is further declared by her screaming and complaining of pain in the head: the pupils are dilated; the superficial veins of the head prominent and distended; the cheeks flushed; the pulse rapid, with a dry hacking cough, increased at night, and the breathing accelerated: the rigidity is more or less general throughout the body, attended with occasional convulsive tremor of the extremities: there is neither delirium nor coma. Two of the same family have died from hydrocephalus.

*Applicetur Embrocatio communis capiti raso.*

*Habeat Pil. Galban. comp. et Pil. Aloes cum Myrrh. āā gr. v. omni nocte.*

A seton was applied to the nape of the neck the day following.

7th. The cough had become more troublesome.

8th. The bowels too much relaxed.

*Sumat Hydr. cum Cret. gr. ij bis die; et*

*Infus. Cascarillæ cum Soda ter die. Beef-tea, Arrow-root, &c.*

The appetite is very good, and there is no difficulty of deglutition.

9th. More restless and fretful during the night, screaming out, and referring pain to the head; otherwise the same: pulse 160.

11th. Abdomen greatly swollen last night; the breathing shorter and more laborious, effected chiefly by the diaphragm. Hiccup came on early in the morning, and has since subsided; the respiration and pulse were then exceedingly rapid; they are this morning 40 and 160 respectively: the irritable habit and fretfulness have subsided, and there has supervened a state of oppression without coma or delirium; indeed she is remarkably distinct in her answers, recollecting circumstances regarding her health which occurred long ago; the appetite, which was great, is almost gone; the countenance pale, but the cheeks are suffused from time to time with a purple flush; the abdomen is rather tumid, the fæces always passed involuntarily; the right arm is bent over the body, and firmly contracted, stiff, and inflexible; the spastic action of the muscular fibre may be felt by laying hold of the right arm or the left leg; the eyes are directed to the left, and she does not move them when requested or when spoken to: there was observed, after taking nourishment this day, a violent spasmodic action of the muscles of the left side of the face, particularly the mouth.



9 o'clock P.M. Comatose and insensible; the eye-balls, which before were fixed, are now constantly rolling; the mouth is drawn to the left side, not permanently, but spasmodically; the mouth is nearly closed, and frothy saliva rests upon it. Pulse 176, not faltering; the extremities and head warm: hiccup renewed occasionally; abdomen tumid: the muscles of the extremities are constantly quivering and twitching: she has taken nothing since five o'clock.

12th. Dissolution seems to be approaching; the breathing sonorous, with mucous tracheal rattle: a miliary eruption, forming small transparent vesicles, has appeared over the whole chest: eyes dim and fixed; pupils contracted; pulse flags during inspiration, and then beats three or four hurried strokes during expiration; forehead and extremities very warm. Expired at half-past four o'clock.

#### SECTIO CADAVERIS.

On removing the calvaria, nothing remarkable could be seen in the dura mater; but when this was raised, on the left side just beneath the arachnoid were observed several irregular-shaped yellow spots, generally following in some degree the sulci of the convolutions, and not elevated above the surface: on touching them it was evident that they were hard and unyielding; some were glued and fastened to the thin membranes, and others were not only fixed to them, but were so firmly attached to the dura mater, that they partly tore away if that membrane was forcibly raised; incisions made into them proved that they frequently extended to the depth of about half an inch, varying however in this respect; they were of a light yellow colour throughout, and of a curdy or cheesy consistence, softening towards their centres.—On raising the right side of the dura mater, precisely the same appearance was seen (Plate XXIX. Fig. 1.). There was no unusual effusion of fluid under the arachnoid. A section being made just on a level with the top of the ventricles, the chief seat of these tubercles, besides the superior part of the hemispheres, was seen to be the posterior and internal part of the brain, where the hemispheres join, and in no case did they seem to be completely imbedded in the brain so as to be detached from the cineritious matter; in one instance only at the posterior part of the ventricle was a small tubercle observed, which apparently was imbedded in the medullary matter; but on more strict examination this was found to arise from the posterior part of the corpus striatum (Plate XXX. Fig. 1.). The ventricles, so far from being distended with fluid, contained less than natural. Small tubercles of a more di-



stinctly circular form, and of the size of small beans, occurred in several parts of the base of the lobes of the cerebrum, always, however, situated in the cineritious substance.—The cerebellum on its superior surface also presented these tubercles; and when the left lobe was divided, a considerable body of the same kind was found in the corpus rhomboideum (Plate XXIX. Fig. 2.); one small tubercle was also found in the cineritious portion of the medulla oblongata; a considerable portion of the medullary structure in the middle lobe of the left side was softer than the rest, but not obviously disorganized.

The most minute examination of the spinal cord led to the discovery of no tubercular disease, though the whole was rather soft; and from the way in which it projected wherever an accidental wound was made through the arachnoid, we suspected that membrane to bind it rather more closely than natural; the membrane was not, however, opaque or thickened. The left lung was free from adhesions, but internally it was almost filled with minute miliary tubercles, and the intervening portions of the lung were red. The right lung was less filled with tubercles, but contained many, and it was unusually adherent to the pleura costalis. Heart healthy, except in having a white patch upon its surface.

The liver of a light drab colour. The omentum adhered firmly to the parietes of the abdomen, and was studded with tubercles; the whole peritoneum of the intestines was in a similar state, studded with small miliary tubercles sprinkled in all parts, either single or in clusters; these were most numerous about the mesentery. The spleen contained some small tubercles, as did the kidneys. The uterus was small and healthy, but the Fallopian tubes were tortuous and hard, of the size of a small quill, and filled with a white cheesy matter; their orifices were open, but at a very short distance down, the tube was quite blocked up by its morbid contents; their fimbriated extremities were widely expanded, stiff, and thickened, owing to which the structure was rendered very obvious.

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In this case we have a striking exemplification of the tendency which often prevails to the formation of tubercles in various parts of the body generally connected with a scrofulous constitution,—often running into phthisis pulmonalis, sometimes inducing marasmus and peritoneal disorganization; and often destroying life, as in this instance, by the forma-

tion of tubercles more or less extensive in the brain.—This disease appears to affect in a peculiar way the serous membranes, and, not unfrequently, is attended with a disposition to an increased accumulation of fluid in the cavities, showing itself by effusion into the abdomen, or producing hydrocephalus: and it would appear that it is not necessary for tubercles to exist in the brain in order to excite the hydrocephalic action, nor is the effusion of fluid in the brain, at all a necessary result of the existence of such tubercles.—Thus in the present case, though the tubercles had proceeded to a great extent, and induced the most distressing effects, no effusion had taken place: and in a case which I shall immediately relate, the effusion had taken place in a constitution exactly analogous, as proved by the other morbid appearances, without any tubercular formation in the brain: while in a third, to which I shall also refer, both the tubercles existed to a small extent in the membranes of the brain, and hydrocephalus had taken place;—from which different facts, it would seem that the hydrocephalus is rather the result of the constitutional tendency than of the tubercles, though these morbid deposits are probably often the exciting cause. In the family of Amelia Humphreys two children had already died of hydrocephalus; and phthisis had destroyed a sister of the next patient I shall mention.

The case now before us is that to which I have referred in page 47, as tending to show the probable connection between injury of the cortical portion of the brain and convulsions. The spasmodic rigidity in this case was not altogether unlike what was observed in Case XIX.; and as there was no serum effused, the consideration of the cause on which that might depend is in some degree simplified, though the state of the corpus rhomboideum, and of the spinal cord more particularly, must not be left out of view.

The peculiar appearance of the Fallopian tubes in this instance corresponds precisely with that described by Dr. Abercrombie at page 170 of his valuable work on the Brain, where, indeed, several cases analogous to the present will be found. And the state of constitution on which these diseases appear to depend, is precisely that to which the eminent pathologist Dr. Farre has referred in his “Apology for British Anatomy.”

## CASE CLXVIII.

*Hydrocephalus in a constitution disposed to Tubercular Deposits.*

— was a boy of seven years of age, rather tall, and formerly of a stout frame of body, and of a mild and tractable disposition, but always averse to mental application. His head was large, and full towards the occiput, and his chest was not sufficiently expanded, which defect, his mother said, had increased of late. For the last ten months he might be considered as having fallen off in person, and as having become rather more irritable in mind. About three months ago, he went through the measles, from which he did not recover well, and occasionally had a little cough. Five or six weeks before his death, Dr. Hodgkin was consulted respecting him; and although there were then no decided symptoms of head affection, he was led by his manner and appearance to caution the parents against any over-exertion of mind, and to recommend that he should be taken to the sea-side, whither he went a short time after, and there, in the course of a fortnight, began to improve greatly in appearance; but two days before they left the sea, he was not so well, and was attacked with sickness at the stomach, and retched severely, which his mother said she never remembered to have happened in his life. They came to town in the steam-boat, on the 3rd of September, and he was observed to be remarkably nervous, so that coming into the bustle of the streets he quite trembled and shook with alarm, and when he got into the coach, held firmly, as if he feared some injury. The good looks which he had acquired when he first went into the country now completely left him, and his friends were much disappointed after the accounts they had heard of his improvement. He became exceedingly irritable, was sick at the stomach, complained of constant pain in the fore part of the head, his pulse rather excited, and tongue white. All this went on: he disliked the light, he got drowsy, had strabismus of the right eye, and was sometimes incoherent, but to the last was occasionally sensible, so that within an hour or two of death, which took place in the evening of September 20th, he roused up and made coherent observations. When it became obvious that disease was going on within the brain, the mother brought to mind that he had always of late seemed very unwilling to hold his head low, or to read, or play any little game on the table, which required him to look down; and when at the sea-side, although he gave no reason, and made no complaint, he would never pick up shells on the beach, or join in such occupations with his playfellows as required stooping. He also, without making any complaint that the light hurt him, always at that time, made a point of sitting with his back to the light on a chair between the windows, although he was often desired to sit on the sofa, which was opposite to the light.

Through the kindness of Dr. Hodgkin, under whose care this child had latterly been placed, I was present at the examination.

## SECTIO CADAVERIS.

Body considerably emaciated ; chest narrow. Abdomen rather tumid. The head full at the back part, but not more than in many children who enjoy health. The scalp was free from blood ; the skull was thin, and separated pretty easily from the dura mater, but the sutures gave way a little while the skull was being raised. The dura mater appeared full and tense, and when taken off, the arachnoid was slightly unctuous to the touch : no particular vascularity of the arachnoid, but the large veins going towards the longitudinal sinus were distended. The convolutions were all flattened ; and between them, in the sulci, was seen a small collection of serum, of a dull yellowish colour, slightly opaque or turbid, apparently the result of inflammation. The arachnoid and pia mater separated with tolerable facility, considering that the brain was decidedly soft. When a cut was made, at the usual depth, to remove the top of the hemisphere, the lateral ventricle was cut into, and a quantity of clear fluid escaped. Both the ventricles were greatly distended with this fluid, which could not have been less than six or eight ounces. The roof of the left ventricle, at its posterior part, presented a very curious appearance, consisting of several fine spots of ecchymosis, not unlike those distributed through the brain of Stuve (Case XXIV.) ; and this appearance extended downward at the back of the ventricle, into the posterior cornu, over the hippocampus ; nor was it confined to the surface, but was seen distributed through the substance of the cerebral portion in that part. The brain, at the posterior part of the ventricle, was completely softened down, but not the least discoloured in its substance, though pervaded with several of the red spots. The membrane lining the ventricles was not very vascular, and I thought that it was entire ; but it separated from the brain, which then mixed in flocculent shreds with the serum. This softened state extended through the medullary portion, but did not affect the cineritious. The same appearance, but to a considerably less degree, was found in the right ventricle. The whole substance of the brain was very soft, and a good many vessels were seen near the ventricles ; an appearance of spots of ecchymosis was also traced in the crura cerebri. At the base of the brain some fluid had collected, and near the optic nerves a little of the yellow lymph-like serum was seen ; the bulbs of the olfactory nerves tore away, so as to be left in their places on the ethmoid bones. The sinuses of the

brain were healthy. The lungs were unusually adherent, more particularly the right, the pleura of which was much thickened, and covered with a coating of curdlike lymph as thick as brown paper.—This was evidently a disease of some standing, and had none of the appearance of recent active inflammation. The pleura of the left lung was studded with miliary tubercles; both lungs had a very few small miliary tubercles distributed through them, and the substance of the right lung, though imperfectly permeable to air, was far from healthy; the bronchial glands were enlarged. The whole omentum was thickly covered with small semitransparent tubercles, not larger than small seeds, and it was glued down in the right iliac fossa. The same appearance was seen over all the peritoneum covering the parietès, and the intestines and the mesentery, on which part it was still more advanced, and some of the mesenteric glands were enlarged. The mucous membrane of the stomach and intestines healthy. The spleen and kidneys healthy, as was the liver, which however showed some lighter patches and had some peritoneal adhesions.

#### CASE CLXIX.

##### *Hydrocephalus with Tubercles in the Brain, and in various parts of the Body.*

A YOUNG lady, about twelve years of age, had been sent from India to this country. Dr. Addison saw her about nine months prior to her death: she was at that time considerably emaciated, low-spirited, and averse to any exertion: there was a good deal of tympanitic distention of the bowels, with occasional pain, apparently depending rather upon that distention than upon any inflammatory action, as it intermitted, was not materially aggravated by pressure, and was unaccompanied by feverishness. She had no sickness, but the appetite was impaired. From this state she rallied, and is said to have gained flesh under the treatment recommended, which consisted of laxatives and mild tonic remedies. In August 1830, Dr. Addison learnt that she was dead, and was requested to be present at the inspection of the body. He was told that she had had much sickness, and some pain in one side of the belly, with disorder of the brain, which proceeded to coma and death.

#### SECTIO CADAVERIS.

Beneath the arachnoid, apparently adhering to it, and pressing upon the brain, were found in different situations three or four round tubercles of the size of small marbles, of a yellow colour and soft like cheese; one of these had softened down in the centre so as to form a cavity. The immediate

cause of death, as foretold by Mr. Barnes of Chelsea, was decidedly hydrocephalus. The arachnoid of the hemispheres appeared thickened and opaque; there was serous effusion beneath it, and in the ventricles about six ounces of fluid. There was great vascularity both of the brain and membranes, and the white matter of all the parts exposed within the ventricles was remarkably soft and pulpy.

The serous membranes of the chest and abdomen were covered by innumerable hard tubercles varying in size from that of a millet-seed to that of a split horse-bean. Most of the masses, especially in the pelvis, were of a blackish colour externally. Some of the large tubercles had undergone a slight change in the centre, being soft and yellowish, more nearly resembling scrofulous disease. Both pleuræ, the pericardium, the diaphragm, the liver, and in short the whole of the peritoneum, were covered with these tubercles. The mesentery was filled with large deposits of yellow scrofulous-looking matter, none of which however had materially softened. The uterine system was very imperfectly developed.

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On the day that these cases were going to the press, I was enabled by the kindness of my friend Dr. Stroud to be present, together with Dr. Hodgkin, at the examination of a child, the circumstances of which are so closely connected with the present subject, that I cannot avoid introducing the case, though it would have been still better associated with that of M. J., Case XIX., page 43, to which in many respects it bears the strongest analogy.

#### CASE CLXX.

*Extensive Effusion of Serum under the Arachnoid and into the Ventricles; with softening of the cineritious and increased firmness of the medullary substance.—A small tubercle in the brain.*

JAMES S., aged about five years and a half, was from his birth of an irritable constitution; but during the first year or two of his life enjoyed good health, and cut the greater part of his teeth without difficulty or pain. When rather more than two years old, he was, without any evident cause, attacked by a nervous complaint, which progressively advanced, and at the end of three years terminated in his death. It commenced with fits of an epileptic character, at first recurring at intervals of two or three months, but afterwards becoming more frequent, and severe, so that he sometimes had nine or ten in a day. These fits, which seldom continued longer than twenty minutes, were attended with screaming and convulsions, particularly on the left side,



but never with spasm or rigidity, and were commonly followed by sleep. In the early part of the disease he was fretful and troublesome, with a sort of morbid activity, prompting him to be constantly in motion ; but, after some months, had a fit of unusual severity, although without screaming, terminating in a sleep of four hours ; and, on waking, was found to have nearly lost the use of his limbs, which he never recovered, except that, about a year afterwards, he once or twice walked a few steps. As the paralytic and comatose state increased, his arms and legs, when unsupported, hung loose and powerless, and his sensibility was so much impaired that, when severely and repeatedly blistered, he expressed no pain. He soon became unable to feed himself, had a difficulty in masticating, and in swallowing liquids, and his saliva flowed copiously, and habitually down his breast. His appetite was variable, but generally strong, and neither the functions of the kidneys nor those of the alimentary canal seem to have been materially deranged. His cheeks were often flushed, and his sleep at night was usually deficient, or disturbed, except after fits, when it was sounder than at other times. Throughout his illness he rarely complained of his head, although latterly he had several small open abscesses on the occiput, which had been injured by repeated falls. During the last four months of his life he sank into a state of stupor, took little notice of surrounding objects, and seemed to have lost his sight, but had neither squinting nor convulsions, and his hearing continued, as previously, to be acute. Not long before his death he unexpectedly cut four molar teeth, with much screaming and swelling of the face, the occasion of which was not immediately discovered. He seemed at last to die by a process of gradual exhaustion, occupying three days, during which slight mortification took place on the sacrum, the left hip, and the right side of the abdomen ; but, after death, decomposition did not proceed more rapidly than usual.

For this severe disease no obvious cause could be assigned ; but a younger sister of the child is now affected in a similar manner, a brother still younger seems to be threatened ; and his grandmother on the mother's side has, during the last four or five years, laboured under hemiplegia sinistra. During the former part of the complaint he underwent much active medical treatment, including violent salivation, and severe blistering along the whole spine ; but, except from leeching, derived little relief from any of the remedies employed.

#### SECTIO CADAVERIS.

The body greatly emaciated, the knees bent, and no appearance of rigid extension in any part. The head was rather small. The skull of a natural thickness and consistence ; the dura mater slightly attached to the skull along the sutures. When the dura mater came in sight, it was obviously distended, looking smooth and tense ; and when it was removed, the whole arachnoid was seen distended with pellucid fluid, and beneath, the convolu-



tions were small and contracted, appearing corrugated, and separated from each other by the fluid. Many large veins seemed to lie on the surface of the fluid; and when it had made its escape, the whole brain appeared small and covered with venous vascularity. On examining the condition of the dura mater, it was thick, its large vessels full, and its internal surface was lined with a spongy arachnoid unusually red; and when this was peeled off, the red colour remained in part upon the surface of the dura mater itself. The longitudinal sinus felt thickened, and together with the lateral sinuses and some of the large connected veins was full of a soft red coagulum. Attempting to strip the arachnoid and pia mater from the brain, it was found impossible, without drawing with them an uneven ragged layer of the cineritious substance, consisting of above half its thickness; and this appeared to depend quite as much upon the softness of the cineritious substance as on any unnatural adhesion, for by means of a sponge the whole of the cortical portion could easily be removed, leaving the sharp convolutions of the medullary matter fully exposed to view. (Plate XXXI. Fig. 3). The medullary part was as remarkable for unusual firmness as the other was for being soft, and afforded considerable resistance to the scalpel; and though there were many indented points where vessels were cut across, no blood was seen issuing from them. The ventricles contained a moderate quantity of limpid fluid, probably an ounce in each, and the parietes were firm from the condition of the lining membrane, as well as of the brain: the commissura mollis struck us as particularly marked, like a solid round cord. There was some serum collected at the base; and on cutting into the lower part of the middle lobe on the left side, one yellow tubercle of the size of a large pea was discovered in the bottom of one of the convolutions. The cerebellum was very peculiar in its appearance, for some collections of fluid had formed between the two hemispheres, in such a way as to have occasioned deep impressions hollowed out as by the pressure of the thumb. The cerebellum looked particularly pale, and, quite contrary to the cerebrum, allowed the arachnoid and pia mater to be stripped off with the greatest ease, leaving the plates of the cerebellum beautifully distinct from each other, having the appearance of a roll of fine vermicelli. On examination it seemed that the cortical substance bore a very small proportion to the whole cerebellum, indeed it suggested to us the idea that it might have been in part absorbed; there was no appearance of softness in any part. The optic and other nerves

coming from the base were all firm, and even the olfactory allowed the cineritious matter to be scraped away, and remained like a fine thread of medullary substance. The medulla oblongata was firm, as was that portion of the spinal cord which could be got at by the foramen magnum, but not to so marked a degree as in the case of M. J., page 43.

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The occurrence of a tubercle in the brain leads to the conjecture, that possibly, had we examined the other viscera, further marks of the tendency to such formations might have been discovered, and thus this case would have more strictly connected itself with our present subject; but as a case of chronic accumulation of fluid chiefly external to the brain, it might from its symptoms and the morbid appearance have been annexed, had I been earlier possessed of it, to Case XIX., or perhaps might with propriety have found a place amongst the cases of "Cerebral Pressure from Serous Effusion." In comparing it with Case XIX., it is difficult to find any point of dissimilarity in the appearances, sufficiently strong to account for the absence of the spasmodic stiffness which marked the other in so peculiar a manner; but though that particular symptom was absent, convulsions of a more sudden and severe character were frequent. Still this want of perfect accordance between the symptoms and the appearances in the two cases, points out in a striking manner the difficulty of ascertaining all the morbid changes, so as to assign fixed symptoms to particular appearances in the brain. The clearness of the intellect in the case of Humphreys, and the combination of spasm with the paralytic symptoms, correspond well with the absence of such effusion as was calculated to produce pressure, and with the existence of tubercles too small for that effect, and confined in their operation in a great degree to the pressure and irritation of the cortical portion; while the imbecility of mind in those cases where considerable effusion has taken place, so as to produce compression of the substance of the brain, has been equally remarkable.

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In connection with the effects of tumours in producing pressure on the brain, it is well here to refer to Cases XVI., LXIII., LXIV., and LXV., which have been previously introduced under other heads in this volume; and also to Cases LXXIII., LXXIV., and LXXV., in which encysted abscesses produced some of the symptoms by pressure which tumours are calculated to excite.

II. SYMPTOMS OF PRESSURE, OR OF INTERRUPTED CIRCULATION, FROM CHANGE IN THE GENERAL SUBSTANCE OF THE BRAIN.

We occasionally find great alteration of the whole substance of the brain not in the way of tumours, or distinct deposits of new matter, nor in the form of partial change or destruction, but a more general change through the entire mass ; and from some of these morbid alterations, symptoms arise very analogous to those of pressure, and probably depending upon the same state of the vascular and nervous matter, whatever that ultimate condition may be. These general changes, as far as I have observed them, are :

1. An increase in the volume of the brain, without any remarkable change in its texture and consistence ;—a state of disease which is sometimes attended with acute symptoms, resembling effusion in the brain, both in children and in adults. (Case CLXXI.)

2. An unusual degree of firmness, which, though it has been such as to be admitted without doubt by all present at the examination, has not been attended with decided paralytic symptoms. This I remember to have seen particularly exemplified in a woman who had long been an incurable lunatic.

3. A flaccid condition of the brain, where it has lost its firmness, but retains a certain tenacity ; and this seems to occur in broken constitutions after long illness. (Case LXI.)

4. An unusually soft and watery condition of the whole ; attendant upon diseases of emaciation, with general loss of strength, but without marked paralytic symptoms, as in some cases of phthisis and diabetes. (Cases CXXII., CXXIII., CXXIV.)

5. A general dwindling, and decrease of volume, attended with hardness and an appearance of contraction. (Case CLXXII.)

6. Such cases as Case CLXX. and Case XIX. might perhaps be added to this class, where very opposite states prevail in the two portions of the brain ; the cineritious substance being peculiarly soft, while the medullary is contracted and hard.

Some of the above morbid conditions appear very distinct from, and even opposite to, each other ; but as it is probable that many of the symptoms of pressure depend upon interrupted circulation, we easily perceive that, various as the conditions are, they may produce their effects on one common principle.

## CASE CLXXI.

*Cerebral Pressure, from a change in the Brain itself, producing Enlargement of its Substance.*

BENJAMIN DAVIS, about 45 years of age, was admitted, under my care, into Guy's Hospital, August 11th 1830. He had been employed in the manufacture of white-lead for six months, but had never suffered any bad effects from his occupation. About three weeks ago he began to appear ill, but continued to work till five days before his admission; he was then seized suddenly while at work, and taken home almost senseless and powerless, yet he was not described as having had a fit of any kind; indeed this was denied. He had remained in a state of stupor, with occasional delirium, from that period. At the time of his admission he was drowsy and heavy; with great difficulty could he be roused to answer questions; and when he opened his eyes, there was manifest strabismus, which his wife told us was not customary: his pulse was 44, and labouring, and his tongue loaded with a gray fur: his bowels were said to be costive.

Radatur caput, et applicetur Embrocatio communis.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad 3xiv.

Habeat Hydrarg. Submur. gr. v statim, et Haustum Sennæ secunda quaque hora ad alvi solutionem.

Admoveatur Emplastrum Cantharidis nuchæ vespere.

12th. Has had a restless night, attempting often to get out of bed; he has had several stools, but they have been passed in bed: when spoken to and roused, he answers rather sharply, saying that he has no pain in his head now, but that he has had during the night: tongue dry in the centre, but less furred: pulse between 60 and 70.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad 3x.

Habeat Hydrarg. Submur. gr. j secunda quaque hora.

13th. The cupping bled so freely as to require a compress to stop it: he passed a restless night, sometimes crying out, and attempting to roll out of bed, but when out was unable to stand. Respiration 16, with a loud snoring noise; pulse 76: he is easily roused, even from what appears so deep a sleep, but falls off again directly; he gives short, quick, and apparently correct answers, denying any pain; and he sees distinctly, but he seems to have some difficulty in directing his eyes, which are cast upwards; and though he answers at first distinctly, he soon rambles, and talks incoherently: he is able to move all his limbs, and does move them when repeatedly desired. Bowels open.

Habeat Olei Ricini 3fs statim.

Repetatur Pilula secunda quaque hora.

Applicentur Cataplasmata Sinapis pedibus.

14th. Night passed in constant delirium, requiring restraint: tongue rather dry, not brown, nor are the teeth covered with sordes: there is no obvious paralysis, but the stools are passed in bed: pulse 84, of good strength: he frequently moves his hands, as if he saw objects which he would reach.

15th. He was cupped to twelve ounces from the temples.

16th. He had passed a more tranquil night, but was inclined to remain in a profound stupor, unless roused, when he answered questions: his urine passed from him in bed, as did his stools. I placed my hand on his belly, and he expressed much pain, which led me to examine, and I found the bladder distended: a pint and a half of deep dingy-coloured urine was immediately drawn off, after which he fell for four hours into a deep sleep, then took a basin of gruel, and in about two hours died, almost without any one being aware of it.

#### SECTIO CADAVERIS.

The examination took place about eighteen hours after death.—Removing the calvaria, the dura mater was seen quite full, and fitting closely to the brain within; and on taking it away, the whole brain presented a flattened surface; so that the separation into convolutions was marked only by the most superficial lines: the arachnoid was rather unusually fine, thin, and transparent in its texture, and the pia mater exhibited no more than the natural vascularity. There was not the least trace of fluid beneath these membranes, and in consequence of this they were separated with some difficulty from the brain, and not detached in large flakes from the surface. The substance of the brain was firm and natural, but the medullary part conveyed the idea of being in great abundance, and massive; the ventricles were rather small, and each did not contain more than half a dram of clear serum; indeed the deficiency of fluid in the whole brain was so great, that after it had been sliced down in the usual way, and turned out to show the base, there were but two distinct drops of blood in the basin which had been placed beneath to receive any fluid which might fall. The vessels at the base were healthy, as were the cerebellum and the medulla oblongata; so that the only disease was the compressed condition of the surface of the brain, occurring in spite of the total and unnatural absence of fluid, or of any other obvious cause which could occasion it.

With regard to the other viscera, the lungs were crepitant, but gorged, particularly at their posterior part, with blood and serum, and in that way rendered more lacerable under pressure than natural: the heart was healthy but flaccid: the arch of the aorta inclined to irregular thickening. The liver and pancreas healthy: the spleen remarkably soft, so that its

tunic having been previously in part ossified, it soon broke down under pressure, feeling like a bladder full of fluid.—The mucous membrane of the stomach rather unhealthy. The whole of the intestines healthy, and no irritation on the mucous membrane. The bladder large and flaccid, containing a good deal of urine, but not sufficient to distend it in its present relaxed condition. The kidneys healthy.

In this case, both the symptoms and the appearances bespeak pressure. It was not simple pressure, but combined with inflammatory irritation to such an extent that effusion was suspected. Some of the viscera, more particularly the lungs and spleen,—though not the seat of any inflammatory action,—gave those evidences of congestion which often accompany simple fever. The condition of the brain was certainly very peculiar, where from enlargement or dilatation of the cerebral substance, independent of any obvious morbid deposit or effusion, the convolutions were as greatly depressed as is generally found when several ounces of serum have collected in the ventricles.—The symptoms apparently depending upon this peculiar state were slowness of pulse, at first but 44 in the minute, and never rising above 84, together with a truly lethargic drowsiness. The skin was not hot, the tongue not chapped and brown, the teeth not covered with sordes; in fact, it bore so little the character of fever, that it is difficult to arrange it under that head, but still I believe it to have belonged to that class of diseases. Cases in which the brain is thus increased in volume are by no means common; but I have seen a tendency to it in two or three instances, particularly in children. Hufeland in the year 1824 published some observations on cases of this kind in the “*Bulletin des Sciences Medicales*,” and it has by no means escaped the observation of other pathologists.

## CASE CLXXII.

### *Contraction of the Substance of the Brain, attended by Paralysis, and Imbecility.*

JANE HUNDER, between 50 and 60 years of age, had long been in the service of Mr. J. Travers, and appears to have conducted herself with so much fidelity and propriety, that on her becoming disabled by infirmity, she was not only liberally provided for during the remainder of her life, but continued to the last to receive the kindest and most exemplary personal attendance. She was not seen by Dr. Hodgkin (under whose care she was afterwards placed, and who has supplied most of the following statements,) in the early part of her malady, which was a gradually increasing mental im-



becility, amounting at length to fatuity, accompanied by a diminution of muscular power, which was more observable on the left than on the right side; it was also more remarkable at some times than at others. Notwithstanding this failure of locomotive power, she managed to totter about the house, and even to go out of doors, with some assistance, till within a few months of her death; and though the state of her hands, which were rather more paralysed than the feet, concurred in a great degree with her mental imbecility to prevent her from assisting herself, she often employed them in a trifling or even mischievous manner. Her countenance was indicative of a mixture of drowsiness, vacancy, and melancholy; and her eyes, which were generally imperfectly opened, were more particularly characteristic of the first, except when their weeping gave more of the last character. She often felt dizziness, and frequently a dull pain of the head, which seemed at times to be relieved by pressure. Her memory was greatly impaired, but, as is often the case, the recollection of recent events was more difficult than that of those which were long passed. She had a propensity to collect and conceal money and other objects,—a circumstance by no means unfrequent with those who are labouring under mental derangement, and perhaps especially in that form which is accompanied by loss of power in the limbs and difficulty of articulation. She was at times rather violent, threatening to injure herself or others, and at times attempted to go about in a state of nudity. When first seen by Dr. Hodgkin, her general health was by no means good; her tongue was remarkably red, her bowels irregular, and the pain of head and giddiness more complained of than latterly. Leeches were repeatedly applied, but she seemed to derive little if any benefit from depletion, but was more relieved by tonics, and occasional laxatives. As her general health improved, medicine was discontinued; and her appetite increased to an inordinate degree, notwithstanding her almost absolute inactivity. From want of power, consciousness, or care, or from all these combined, she ceased to controul the evacuation of urine and fæces, but by great care and attention she was kept clean, and remarkably free from offensive odour. A few days before her death she was attacked with diarrhœa, which was at that time a prevailing malady: she was drowsy, but her appetite continued with little abatement: a considerable slough formed on the sacrum, and she died on the morning of the 9th. Cretaceous mixture and other astringents had no influence on the diarrhœa, but opiate injections diminished the number of evacuations.

#### SECTIO CADAVERIS.

The examination (at which I was present with Dr. Hodgkin,) took place within twelve hours after death.—There was very strong attachment between the cranium and the dura mater, so as to require no small force to separate them; and when detached, the dura mater, particularly near the longitudinal sinus and for some distance on each side, was rough and scabrous, apparently from an adventitious deposit having taken place.



The internal surface of the skull corresponding with this was likewise rough from small bony points and elevations. There was no unusual adhesion between the arachnoid and the dura mater, nor was the arachnoid opaque; neither was there any considerable accumulation of fluid beneath the arachnoid, though rather more moisture than in the perfectly healthy state. Still there was a marked peculiarity in the appearance of the brain, even before the arachnoid and pia mater were removed: the sulci between the convolutions were wide, and the convolutions themselves, instead of appearing to fill the whole space and gently press upon each other, producing a comparatively smooth surface, looked contracted, crisp, and corrugated, falling into slight hollows or dimples on those parts which are usually most prominent, and marked by shallow transverse depressions traversing the tops of the convolutions. The membranes came off easily, and then the corrugated appearance of the convolutions was more distinct, so that in some parts they almost assumed a notched form; and this morbid alteration, which was observable throughout, was particularly marked upon the anterior portion of the middle lobe on both sides; and some of the small projecting portions presented rather a lighter colour than the other parts of the cineritious matter. When a convolution was taken between the finger and thumb, it gave a sensation of unusual resistance; and when pinched, the external layer of the cineritious substance was detached from the rest with great facility (Plate XXXI. Fig. 4.). Cutting into the substance of the brain, the whole might be considered firm, and the medullary matter had a yellow or fawn-colour tint, slightly differing from the colour in health. On scraping the substance with the scalpel, it was evident that the inner portion of the cortical substance was softer than the external portion, and considerably softer than the medullary part, which again appeared firmer at the edge than in other situations.

The ventricles were rather contracted, and contained very little fluid; their parietes presented resistance to the knife, and the surface of the optic thalami was rough and corrugated. The choroid plexus on both sides had numerous vesicular bodies upon its posterior part. The cerebellum was apparently more healthy than the cerebrum, but it participated in the softness of the cineritious matter in comparison with the medullary.—The large vessels at the base of the brain were marked by a few opaque patches, which was still more marked in the large trunks passing in the fossa Sylvii; the medulla oblongata was not obviously diseased; and the pituitary gland was fleshy, and very easily turned from the cavity which it occupied.

### III. PARALYSIS FROM INFLAMMATION AND MORBID ACTION IN THE MEMBRANES OF THE BRAIN AND NERVES.

Besides the cases of paralysis arising from the causes hitherto mentioned, many occur of much more difficult explanation, but in a great proportion of which we are induced to ascribe the mischief to some vascular changes allied to congestion, or to the result of some inflammatory action going on in the membranes, either of the brain or of the spinal cord and nerves, and the fine cellular membrane connecting the nervous fibres. Cases of this kind are often preceded by rheumatic pains, and sometimes by distinct attacks of rheumatic gout, sometimes by well-marked neuralgic affections; and they are frequently to be traced to exposure to cold and wet. In some of them, examination after death gives satisfactory evidence of the existence of such results of inflammation as are well calculated to produce pressure, and at the same time proves the nature of the action which has been going on; but in other cases the appearances are scarcely sufficient to account for the symptoms. Still it is right that we should take into consideration the peculiar structure of the mass of nervous matter which composes the brain, and the numerous and complicated bundles of fibres of which the spine and nerves are formed, and the extent of the fine membranes to which I have just referred. Supposing, then, that the membranous structures are extensively influenced by morbid action, we easily understand how in many cases all the effects of pressure, or at least of interrupted circulation, should be induced, without the brain or nerves presenting any very great or obvious appearance of disorganization.—Nor is this view of the matter imaginary, but it is the conclusion to which I think we are fairly led by contemplating the slight but obvious changes which are very frequently exhibited in cases of a similar kind, and which will be learnt from some of the following cases, presenting themselves in the forms of thickened membranes,—slight adhesions,—thin adventitious deposits,—and serous effusion more or less extensive.

#### CASE CLXXIII.

*Paralysis of the Legs, extending in a less degree to the upper extremities; Thickening of the Membranes, and slight Serous Effusion in the Ventricles.*

JOHN OKEY, aged 42, was admitted into Guy's Hospital, under my care, August 19th, 1829. He was a man of rather short stature, with a high forehead and projecting

eyes, a basket-maker by trade. About two years and a half before, he had first begun to feel weakness in his loins, and he gradually found his legs and thighs become numb; and latterly his hands and arms had also been affected, but in a less degree; and for the last six months he had felt particularly unwell. At the time of admission, the whole of his lower extremities and the lower part of his body were affected with numbness and so great a deficiency of power, that he could scarcely support himself with two sticks, moving his legs in an uncertain and vacillating manner, and tottering as he went. In the upper extremities, this numbness was chiefly experienced in the little finger of each hand, and the finger next to it. He occasionally passed his urine unconsciously; his bowels seldom acted without medicine. He had no noise in the head, nor headache, nor any unnatural sensation in the tongue, nor difficulty of speech.

During the time he remained in the Hospital I made various attempts to relieve him by external irritation: setons were kept open for several weeks in his neck; blisters were applied between his shoulders, and the discharge encouraged, and others applied to his loins. Moxa was twice used on the spine, and the tartar emetic ointment was rubbed in, so as to produce an extensive eruption. A regular action was maintained on his bowels; and from the 22nd of August to the 2nd of October he took the *nux vomica*, beginning with one grain, and gradually increasing it to eight grains three times a day. From the 2nd of October to the 23rd, he took from four to six drops of the mineral solution three times a day: he afterwards took the Peruvian balsam, and employed the shower-bath. None of these remedies, however, had the least effect in diminishing his symptoms, which, on the contrary, gradually but very slowly increased: some days he had a good deal of pain shooting into his limbs; and occasionally, though very seldom, he complained of lightness in the head. Towards the end of December his manner became much agitated. On the 23rd this was very remarkable: his countenance was pallid; and he had frequent sighing. Pulse 110, weak: respiration 48, and short: he complained of pain in his head, and occasionally wandered in mind. He was removed home at his own request, and did not survive many days.

#### SECTIO CADAVERIS.

On removing the calvaria, the vessels of the dura mater appeared remarkably turgid, and there were many points from which dark-coloured blood issued: the dura mater seemed tense, and was decidedly more thick and tough than natural, and adhered with great firmness at those parts where the white granular substance, considered as the external glandulæ Pacchioni, was abundant; and on the anterior part of the right hemisphere it adhered more firmly than usual to the arachnoid. The arachnoid was opaque, and beneath it a moderate quantity of serum was thrown out: it was raised

with the utmost facility from the brain, and, together with the pia mater, formed a tough membrane almost as thick as the dura mater usually is.

The substance of the brain was perfectly natural, but, when cut into, showed a number of dark sections of vessels, from which, however, but little blood issued: there was no tumour, nor any hardened or softened part to be discovered. This fact was ascertained after a most minute examination of all parts, both of the cerebrum, cerebellum, pons Varolii, and medulla oblongata. The ventricles were distended with about four ounces of most limpid fluid: the foramen of Monro was of the size of a small goose-quill; and the third ventricle was large.—This state had obviously existed for some time, as all the parts seemed permanently distended, and held their position firmly. The lining membrane of the ventricles was rather thickened, and in parts rough, with a slight pile upon its surface.—The choroid plexus on each side looked like a cluster of varicose veins, almost resembling a half-ripe blackberry; an appearance, however, which did not depend on vesicular bodies.

The foramen magnum of the occipital bone was so contracted as with difficulty to admit the first joint of the fore-finger, and this owing to thickening of the ligaments, rather than to any disease of the bone. The spinal cord was of a very small size, and at its upper part the dura mater covering evidently adhered, in a degree much more than natural, to the arachnoid beneath it.—The dura mater of the spine was not itself thickened. The substance of the cord was natural, except that a small portion near the middle of the spine attracted attention as breaking down more easily than the rest; the change was not, however, very well marked.

The following case was communicated to me by Dr. Stroud, by whose kindness I was present at the dissection, which was very carefully conducted by our mutual friend, Dr. Hodgkin.

#### CASE CLXXIV.

*General Paralysis, with thickening of the Arachnoid of the Spinal Cord, and Base of the Brain; and slight serous Effusion into the Ventricles.*

ALEXANDER J——, aged 46, a married man, formerly in the Ordnance Office, came October 21st, 1828, to the Northern Dispensary, dragging himself along with difficulty, and irregularity, and evidently labouring under palsy. He is of short stature, and pale complexion, has some distortion of eyes, and is much marked by the

small-pox. No very evident cause is assigned for his complaint, which is said to have commenced about two years since, with pain in the head, and between the shoulders; but one of his brothers is reported to have died, some time after this date, of an apoplectic attack. His present symptoms are occasional fits of an epileptic character, but neither severe, nor long-continued, and terminating in sleep; some intolerance of light, and of sound, tremor, indistinctness of speech, dulness of mind, weakness and irregularity of muscular movements, habitual costiveness, and frequent vomiting, more especially after swallowing anything.

The patient's head was ordered to be shaved, and the scalp to be rubbed with a strong ointment of tartarized antimony: six leeches were three times applied to the temples; a blister was twice repeated between the shoulders; a seton was afterwards inserted in the back of the neck, and a dram of mercurial ointment was daily rubbed in on the thighs. His internal medicines consisted of purgatives, diuretics, and tartrate of antimony; but the chief stress was laid on purgatives, owing to the very costive state of his bowels, attended with frequent vomiting, under which the other symptoms increased, and confined him constantly to his bed. This costiveness was at length subdued, chiefly by the free use of croton oil, given both by the mouth, and in glysters; after which the functions of the alimentary canal became more natural, and he improved generally.

This improvement began in the month of January 1829, and increased during the summer. The patient grew stout, was able to walk abroad without assistance, and took very little medicine. At times, however, he had a slight pain between the shoulders, and a paralytic weakness of the arms, and of the bladder; for which he was once cupped, and blistered in the back of the neck, the seton having been healed, at his own desire, in the beginning of February.

Towards the end of September, after a long period of amendment, symptoms of disorder in the nervous centre again appeared; namely, headache, heat, and redness of face, coldness and weakness of extremities, vomiting, costiveness, and involuntary discharge of urine. Subsequently, he had occasional epileptic fits, convulsions of the muscles of the face, snoring or moaning during sleep, and palsy of all the limbs, especially on the left side. The treatment, including two cuppings, was essentially the same as before. It was remarkable that, when the ointment of tartarized antimony produced pustules between the shoulders, similar pustules appeared about the hips and sacrum; which parts, although not touched by the ointment, were chafed by long lying, contact of urine, &c.; and, towards the middle of November, became gangrenous. At this time he had pungent pains in the hip, knee, and ankle joints, and recovered a slight degree of voluntary power over the legs, while the arms continued more completely paralytic. Without strong purgatives his bowels were obstinately costive; but his urine was constantly draining away in considerable quantity without control: he slept tolerably at night, but was somewhat restless during the day, and was evidently, although gradually, sinking.

At length, on the 19th of December, he died, in a state of almost total palsy, but with mental faculties sufficiently entire. His death was apparently accelerated by very deep and extensive gangrenous ulcerations about the sacrum and hips; which, however, were attended with little pain, and seemed in some degree to have diminished the palsy of the lower extremities.

#### SECTIO CADAVERIS.

Considerable emaciation: the occipital bone projected remarkably: the vessels of the dura mater were turgid with blood; the membrane was not thicker than usual. When the dura mater was removed, no adhesions were found between it and the arachnoid, but the surface of the arachnoid exhibited many turgid vessels, and was rather dry and unctuous, appearing a little pressed upon by the dura mater. The pia mater with the arachnoid was easily separated from the brain, but there was certainly no unusual effusion.

On separating the hemispheres, the corpus callosum was seen forming an arch; and, when the upper part of the hemisphere was removed at its usual depth, the ventricles were laid open, owing to their vaults being raised by fluid: they contained at least two or three ounces of the most limpid fluid, and were throughout greatly distended: the septum lucidum was perfect, but very thin, and at its anterior part quite transparent, consisting apparently of nothing but the layers of the lining membrane of the cavities: the vena magna Galeni was turgid with blood: the commissura mollis was lost, in consequence of the distended state of the third ventricle, which was large enough to contain the first joint of the little finger, and was full of fluid. The foramen of Monro was nearly a quarter of an inch in diameter. The choroid plexus had upon it several small transparent cysts, which were beautifully displayed at the bottom of the fluid, as it descended into the posterior cornua: the membrane lining the ventricles was neither thickened, nor otherwise altered.

On removing the brain from the skull, a remarkable appearance came into view at the base; for, owing to the great thickening of the arachnoid, the several parts, and the nerves arising from them were in a great measure concealed, and the whole surface presented an unusual smoothness and density. The medulla oblongata was bound down almost flat between the two hemispheres of the cerebellum, and the loose portion of the arachnoid, which usually lies over the junction of the tuber annulare and the



cerebellum, was so much thickened, and so opaque, as to appear like an adventitious cyst. The medulla oblongata was flattened by the close pressure of this membrane; and, on tracing the spinal cord, it appeared as if its dura mater were unusually firm and thick, and, as far as the middle of the back, closely adherent to the pia mater, from which in most parts it could not be detached without lacerating the cord.

On attentive examination, it was found that the apparent thickening of the dura mater depended chiefly on a layer of membrane of almost cartilaginous firmness beneath it, and was probably rather the diseased arachnoid, or an adventitious deposit, than the dura mater itself; the adhesion and thickening, though greatest in the upper half of the spine, extended in some degree along its whole course. (Plate XXI. Fig. 6.) With the exception of slight softening about the middle of its cervical portion, there was nothing obviously morbid in the cord itself. Some of the nerves, both spinal and cerebral, seemed small and compressed at their origins.

#### CASE CLXXV.

*Amaurosis and Paraplegia; slight morbid appearances in the Optic Thalami, and in the Arachnoid of the Spinal Cord.*

ANNE DRAKE, a delicate young woman, aged 21, of an irritable disposition, was admitted under my care October 8th, 1820. She had not been subject to pain in the head, or other symptoms denoting cerebral disturbance. She lay-in ten months ago; the labour was natural, and attended with no particular hæmorrhage, or other unpleasant circumstance. She continued in good health till about six weeks, or two months ago, when, in the course of two days she completely lost her sight, without any apparent cause. A week before, however, she had been exposed to cold, after dancing at a fair. She went to Mr. Ware on account of her sight; and, when returning from a second visit, about a month after her first seizure, she suddenly lost the power and sensation of her left leg, and, within a day or two, of her right leg also.

At the time of her admission I found the pulse weak, the pupils dilated, and nearly insensible to light, and scarcely any vision; the lower extremities perfectly useless, devoid of sensation, and slightly œdematous about the ankles. Several oval vesications filled with clear serum appeared on the feet and legs; a large slough occupied the whole extent of the sacrum, and was just beginning to separate, showing that it had passed nearly as deep as it could: she was, however, so perfectly insensible in that part of her body, that she knew nothing of it. The abdomen was occupied by a large tense tumour, extending from the symphysis pubis to three



inches above the umbilicus. It was chiefly confined to the central part of the abdomen; and had been observed increasing for above a month. The urine was reported to come away freely, and the difficulty was to retain it:—bowels well opened. Her intellects were perfect, her diction clear, collected, and unembarrassed: she denied having any pain.—I was much struck by the peculiarity of the tumour; and, although she declared herself to be free from pain, and said she passed a great deal of water, I ordered a catheter to be introduced. I was told that only a pint of clear urine was drawn off, and the swelling of the abdomen was not diminished. At 10 o'clock in the evening I had the catheter passed in my presence, and made regular pressure with my hand on the tumour; the result was, that seven pints and a half of clear urine, not coagulable, were discharged, and the tumour entirely subsided under the hand. I ordered the catheter to be passed three times a day; and, as she appeared to be very feeble, I recommended the sulphate of quinine, and a small quantity of wine, with beef-tea, and arrow-root.

9th. At nine o'clock A.M. six pints of urine were drawn off, and, before one, a considerable quantity had again collected in the bladder. She seemed upon the whole more comfortable. At two o'clock, six pints were drawn off: at nine o'clock, four pints.

10th. This morning only two pints of urine had collected. On trying carefully how far vision was impaired, I found she could distinguish the hands of a watch, but could tell nothing of the figures.

11th. About one pint of urine only was drawn off each time the catheter was introduced.

12th. About the same quantity of urine, the latter part containing muco-purulent matter;—the symptoms little changed.

13th. No return of sensation in the legs: the stools passed unconsciously:—no pain from the sloughing sore; the slough almost come away.

Sept. 15th. About three pints and a half of urine daily: the sloughing sore discharges much; and, when she is moved to have her bed made, it often bleeds profusely.

18th. She was attacked with severe pneumonia, which, reduced as she already was by disease, proved fatal in about eight days.

#### SECTIO CADAVERIS.

The os coccygis was exposed by the slough, and denuded even of its periosteum: on both legs vesications were still to be seen.

The dura mater was attached rather firmly to the skull; the other membranes were perfectly natural. The brain itself was unusually firm, though scarcely to be deemed morbid. The ventricles contained rather less serum than usual; the choroid plexus was very pale. The only part of the brain in which deviation from healthy appearance could be discovered, was the

medullary part of the optic thalami, of which a considerable portion was of an opaque light buff colour, but without any visible change in structure or consistence. The pituitary gland was hard; and, at one part on its superior surface there was a cavity, supposed to be an abscess, not larger than a small sweet-pea. The spinal cord was very firm, and, on taking off the dura mater, presented a series of transverse elevations, as if it were too firmly bound by its investing membrane; there was no preternatural effusion;—just above the cauda equina was a part rather softer than the rest, and we were not aware of any bruise it had suffered in being removed.

The lower lobes of both lungs were in a state of most decided, recent but advanced hepatization, and yielded a puriform fluid when squeezed. The liver was large, but of healthy structure. The kidneys were unhealthy, more particularly the left, which had collections of scrofulous pus in two or three parts near its pelvis: the vessels of the pelvis itself were gorged with blood. The right kidney was of a pale colour. The bladder was empty, and, though quite within the pelvis, was so thick and flabby that its fundus was seen rising above the symphysis pubis. Its mucous surface was dark, discoloured, and slightly ulcerated.

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In this case there are many interesting circumstances, worthy of exciting our attention. The nature of the primary affection was curious, and probably in some degree connected with an irritable state of the nervous system, induced by suckling;—though over-exertion, and exposure to cold were the more immediate causes of those changes on which the paralysis depended. There was probably much of a nervous, or hysterical character mingled in this disease; yet there were appearances which, if we were not misled by the expectation of finding morbid changes to correspond with the symptoms, were sufficient to account for much. The optic thalami were at least peculiar in their colour, and the arachnoid of the spinal cord was singularly bound down, so as to compress the cord.

The condition of the bladder, under the distention which arose from its paralytic state, was also very interesting, and forcibly points out the danger of being misled in such cases. The extent to which the bladder was distended was so enormous as almost to conceal its real nature; and, owing to the paralysed state, it could not be evacuated without pressure; the neglect of which rendered the first passing of the catheter quite useless. The circumstance of incontinence of urine should always lead to the

suspicion that the bladder cannot completely contract on its contents: I have not unfrequently met with the same occurrence in fever. The present case, as far as the bladder is concerned, deserves to be compared with a case lately published in the Medical Gazette, by my friend, Mr. Estlin of Bristol. The collection of puriform matter in the kidneys, and their unhealthy appearance, resulted, no doubt, from the irritation of the urine confined in the bladder.

Another curious circumstance connected with paralysis of the lower extremities is illustrated by this case;—the tendency which is observed in such affections to the formation of vesications, or bullæ, which frequently make their appearance in a night, on some part, as the knee, the ankle, or the instep, where accidental pressure or irritation has taken place: they contain a limpid fluid, which, after a few days, becomes opaque. It has sometimes struck me that this connexion between interrupted nervous action and the formation of bullæ, might hereafter be found to throw light on the nature of that most singular disease, Herpes Zoster, which, from the peculiar pain with which it is accompanied, as well as from its strict confinement to one side of the body, seems to be connected with some peculiar condition, perhaps the distention, of the sentient nerves.

#### CASE CLXXVI.

*General Paralysis of the Extremities; slight appearance in the Arachnoid of the Spinal Cord.*

JOSEPH CHAPPELL, aged 16 years and a half, was admitted into Guy's Hospital, March 9th, 1830; he was a plasterer's boy, of good constitution, and had enjoyed excellent health, having had no ailment during the last seven years; but, five days before his admission, he was seized, whilst walking, with cramp, and aching pains in the calves of his legs; and lost, to a great extent, the power of using his lower extremities: he managed, however, with much difficulty, to get home. He had had no threatening, or warning of any kind, except a weakness of the arms, with stiffness of the fingers, for three or four days previously; nor did he experience any uncomfortable sensation in his head, or elsewhere, either at the time, or before the seizure. Voluntary power became more impaired every day: he made several attempts both to walk and to use his hands, but ineffectually; his health did not seem otherwise much deranged; he continued free from pain, and from febrile excitement, and did not lose his appetite: but, the night before his admission, vomiting came on, and was renewed in the morning. When admitted he stated that he felt a slight pain at the top of his head.

His speech was not affected, nor was the expression of his countenance altered. No decided cause could be assigned for his present illness: he had lately been occupied in moulding cornices; but his employer was not aware that any deleterious substance had been used, nor that he had been much exposed to cold.

March 10th. The power of moving the upper and lower extremities is greatly impaired, indeed, nearly gone; but sensation remains perfect, and the sphincters are not affected. The hands and feet were cold at the time of admission, but are now warm, and there is a gentle moisture over the whole surface. Pulse 90, small, rather sharp. Tongue slightly furred; bowels relaxed the day before yesterday.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒxij.  
Sumat. Pilul. Colocynth. cum Calomel. gr. x. statim, et Haust. Sennæ postea.

11th. Bowels not moved since his admission. During the night he was restless, crying out with pain in the hips, and across the loins, shooting down the right leg; head easy; no return of vomiting. Pulse 96, stronger than natural; profuse perspiration in the night, principally affecting the right arm, and the head. Pressure over the nates, sacrum, and lumbar region produces much pain.

Repetantur Pilulæ Colocynth. cum Calomel.

12th. Great restlessness during the night, but he was more composed towards morning; aching pains returned in the legs; and, as the pain increased, the body became covered with profuse perspiration. The bowels were obstinately constipated, but some fecal matter was expelled with the second injection; it was thin, and without consistence. Complete absence of pain in the head, neck, and spinal column; he can move his neck freely, but has no controul over either the upper or lower extremities: there have been no convulsive twitches, or spasms of any kind. Appetite unimpaired: tongue furred: pulse 92, forcible.

Habeat Pulv. Scammon. cum Calomel. gr. xv. statim.  
Applicentur Cucurbitulæ cruentæ lumbis, et detrahatur sanguis ad ʒviij.

Blisters were afterwards applied to the neck, two grains of calomel were given twice a day, and great attention was paid to his bowels, the evacuations having been very unhealthy.

20th. The gums are sore, and the teeth loose; he is thereby prevented from eating, but feels hungry. No cramps or pains last night, but perspired a great deal: stools nearly as before: Pulse 88, small, and rather thready.

22nd. Much the same as yesterday; helplessness as great as at the time of admission; when moved and raised in bed, he cries out with pain, which shoots from the pelvis down the thighs. He can turn his head from side to side, but does not raise it so readily. The sense of feeling is perfect: he can distinguish directly, not only the foot and hand, but the exact toe or finger one may chance to touch. Stools of a yellowish colour, and decidedly improved. Soreness of gums increased.

April 1st. With the exception of slight improvement in the power of the left arm, and in the character of the stools, very little progress has been made.

On the 8th, a general eruption of eczema took place over the whole body, which went on gradually increasing and becoming worse, till by its irritation he was completely exhausted; and some diarrhœa coming on, he died about the latter end of June, without any decided change having been observed in his paralytic symptoms.

#### SECTIO CADAVERIS.

Most extreme emaciation, sloughing beginning on the scapulæ and sacrum; the scalp covered with a putrid crust, and the whole body covered with the crusts and scales of eczema.

We examined the brain most carefully, but found no evidence of disease. There was the slightest quantity of serum beneath the arachnoid; the convolutions looked small. The membranes tore away easily from the brain. No serum in the cavities, and in general the brain had a very healthy appearance: it was however matter of question, whether the lining membrane of the corpus striatum on both sides did not exhibit some proofs of previous inflammation. The surface of the corpora striata was a little more uneven and waved than general, appearing as if the membrane had been drawn tight over it. The corpus rhomboideum on the right side was more indistinctly marked than usual. We examined the spine with great care: there was no effusion external to the theca; that membrane was quite healthy, and there was no effusion within it. At the upper part, immediately below the medulla oblongata, the spinal cord seemed pinched in and confined by the arachnoid; the membrane was not however sensibly thickened: on splitting up the theca, it was found that it was connected by fine transparent membranous adhesions to the arachnoid; they were so delicate as to be easily separated by drawing back the theca, and they continued down about one third of the length of the cord, when they ceased altogether. Along the whole spine, but more particularly at the upper part, an appearance of fine transverse corrugations was marked, as if from pressure of the investing arachnoid. These marks were less strong than in the last case, but immediately struck the eye. When two longitudinal cuts were made the whole length of the spine, one inch of the lowest part was thought to be a little softer than the rest; in other respects the appearances were quite healthy.

## CASE CLXXVII.

*General Paralysis, from exposure to wet and cold ; with slight Serous Effusion beneath the Membranes and into the Ventricles.*

RICHARD SHAW, aged 46, was admitted into Guy's Hospital, Sept. 29th. He was a sailor, of rather spare habit of body, with a high forehead, and was said to have been occasionally ailing, and sometimes slightly rheumatic, but upon the whole an efficient man. He had been employed in the coasting trade, and on his voyage from Yorkshire had been much exposed to wet and cold for two or three days, during a remarkably rough passage. On his arrival in the Thames, about eight days before his admission into the Hospital, he first felt a tingling sensation in the soles of his feet, and had been gradually losing the use of his legs from that time, but had been able to walk without support, till the day before : during the last three days his hands had become affected in the same way, and a marked alteration had taken place in his mode of speech, which had become thick. He had experienced a slight giddiness during the last two or three days, but never before. At the time of his admission, his complexion was slightly jaundiced and his cheeks flushed ; he was quite unable to support himself ; and when assisted on both sides, with difficulty dragged his legs slowly on, his feet turning by their own weight as he tried to raise them. With regard to sensation, it was very deficient in the left foot, but was more natural the further you examined upwards. The same was the case in a less degree in the right lower extremity. Both hands were very weak and powerless, so that he could not clench his fists ; but the sensation was tolerably entire. There was no pain in the limbs or joints, nor any swelling ; the feet were generally cold, the hands on the contrary hot. Pulse 100 ; tongue moist and clean, and protruded straight from the mouth.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥iv.

Habeat Pilul. Colocyth. cum Hydrarg. Submur. gr. xv.

30th. Countenance decidedly jaundiced ; conjunctiva yellow. Some tenderness at the pit of the stomach ; urine yellow, with red sediment : pulse 120. The paralysis is unchanged, but he complains of some difficulty in deglutition, and his hands seem more paralysed, so that he cannot assist himself to food.

Applicentur Cucurbitulæ cruentæ regioni hepatis, et detrahatur sanguis ad ℥x.

Sumat Pilul. Hydrarg. gr. v. bis die, et Olei Ricini ℥i's pro re nata.

No particular change had occurred in this patient's symptoms when I last saw him, on the 4th of October ; but in the afternoon of the 5th, very severe vomiting came on, and he sunk, as I was informed, very unexpectedly.



## SECTIO CADAVERIS.

The examination was very carefully performed by Mr. Hilton, one of the demonstrators of Guy's Hospital, but unfortunately he was not allowed to examine the spine; to a certain extent therefore the history must be incomplete, but as far as the brain was concerned may be considered perfectly satisfactory.

The body was slightly jaundiced. There was no unusual vascularity in the dura mater, nor was that membrane tinged with bile: there was a small patch of bone deposited at the angle formed by the falx. The arachnoid appeared rather more opaque than natural in some parts, and had slight serous effusion beneath it. The ventricles also contained more fluid than in their perfectly healthy state. In other respects the brain was natural. The chest was healthy. In the abdomen the only disease was a pallid condition of the liver, and the existence of two or three moderate-sized concretions in the gall-bladder, but the ducts were quite pervious.

In this case, there is every reason to suppose that the paralytic affection depended on some peculiar state of vessels leading to the effusion of serum; but whether this was inflammatory and allied to rheumatism, or was rather of the nature of congestion, will admit of doubt; I was inclined to consider it a low degree of inflammatory action. The presence of gall-stones sufficiently explains the jaundice; and, as far as I could collect, the irritability of the stomach acting upon a nervous system, debilitated by such serious disease, was the immediate cause of death, which, though unexpected, was not sudden.

## CASE CLXXVIII.

*General Paralysis, with Vertigo.*

JOSEPH LASKY, aged 45, a German, of middle stature, with a round bald head, was admitted May 13th, 1829. As much as five or six years ago, he occasionally suffered from giddiness, but he never experienced anything like a fit. About a year subsequently he had a sensation, which he describes as cramp in his legs, extending afterwards to his thighs and to his body generally; and soon after, while he was one day eating his dinner, he became suddenly very hot, and covered with a rash, which subsided in an hour or two, but left him numb all over; and thus he has remained ever since, the face being the only part which at all retains its natural sensibility, and there it is not complete: he says that he does not feel the crutches within his hands, nor pinches upon them, nor even the incisions made in cupping upon the

neck : he has also gradually become weak in his limbs, and now drags his legs as he moves forwards by crutches. He has a constant noise in the head like the rushing of water, and is frequently giddy, becoming dizzy and nearly blind two or three times a day ; he can scarcely ever see in a bright light : his hearing is rather affected, particularly on the right side. Pulse 96 ; bowels generally open. From his admission, on the 13th of May, to the 1st of August, no improvement had taken place, though great attention had been paid to his bowels : he had lost ten ounces of blood on five different occasions from his neck, and had had blisters applied both there and to the loins.—August the 4th. He began to take a grain of the *nux vomica* three times a day, and from that time his giddiness almost immediately left him. The *nux vomica* was afterwards further increased to three, four, and five grains : the giddiness never returned, but he left the Hospital very little relieved in his general paralytic symptoms.

When I first saw this man, which was in July, I was led, from the peculiarity of his symptoms, to inquire whether he had been at all employed in the use of quicksilver : and he said that it was now many years since he was, for a year, occupied in silvering looking-glasses : that he found the business did not agree with him, and left it, but at that time experienced no symptoms of paralysis. How far it is possible that his former occupation might have had an influence on his general health, and paved the way for the peculiar paralytic affection, must be matter of conjecture ; but it is not probable. I consider the morbid condition to be of the nature of congestion, possibly going on to effusion, and the *nux vomica* probably produced its good effect by stimulating the cerebral circulation ; nor is this by any means the only instance in which I have seen the good effects of *nux vomica* or of *strychnia* in relieving vertigo.

### CASE CLXXIX.

#### *General Paralysis of the Extremities.*

ELIZABETH ATKINSON, a spare woman, aged 35, was admitted, under my care, September 22nd, 1830. She was first attacked, about three months before, with a cold and cough, and her legs began to fail her to such a degree as she walked, that she several times fell backwards when she attempted to move, and for the last two months had been quite unable to stand. Her hands had also become very weak and contracted, so that she could scarcely open the fingers, and all their motions were exceedingly constrained. The right hand and the left leg suffered most completely ; and the left leg was often moved with a convulsive agitation.—During the whole of her illness she had experienced occasional giddiness and pain in the head. She was the mother of eight children, had never suffered any uterine disease, and the catamenia were

regular. The bowels required medicine :—I ordered the eighth of a grain of strychnia three times a day, with castor oil every morning if necessary. On the 24th this was increased to a quarter, and on the 28th to half a grain. On the 1st of October she began to complain of some pain in her leg, and of occasional twitches in different parts, and she thought she had rather more power in her limbs.—The half grain of strychnia was ordered to be repeated four times a day. This dose seemed to produce spasmodic action, and on one occasion she was seized with a severe spasm; her arms were bent up forcibly, her legs extended, and her body bent backwards: but by the second week in November the only improvement was rather more pliability in the fingers, and the power of raising the feet from the ground as she sat on a chair.

### CASE CLXXX.

*Slow Paralysis, accompanied by pains of a mingled Rheumatic and Neuralgic character.*

STEPHEN HAGGER, a tall thin man, aged 60, was admitted into Guy's Hospital, under my care, June 10th, 1829, affected with paralysis, which confined him to his bed and chair. He describes himself as having been subject to rheumatic pains for the last ten years, but only once, about three years ago, has he had anything like acute rheumatism, which at that time attacked his right knee: for the last three months the pains have been more frequent down his whole right side; and three weeks ago, while working in his garden, he fell down, owing to the weakness of his right leg: he suffered at that time no loss of consciousness, nor had he any affection of the speech. He has experienced numbness in both his hands for the last three years; but this has gradually increased, and they are now so weak that he can raise nothing so high as his head; his feet are also numb, and apt to become cold. The right leg and hand are most affected. He has never had the least pain in the head, but says that once or twice he has felt a little giddy.

In the course of the first four days after his admission he was twice cupped at the nape of the neck, and had a blister applied; he also took ten grains of the compound extract of colocynth every night. On the 16th, a stimulating liniment was ordered for his loins.

20th. Sumat Decoct. Cinchonæ ʒiſs, cum Tinct. Guaiaci Ammoniat. ʒſs ter die.

This was continued with occasional purgatives; and a blister was applied between the shoulders, as well as to the loins.—July 26th. He was put daily under the influence of electricity, having sparks taken from various parts of his body, and the medicines were continued.—August 15th. He was able to stand without support, and walk with a stick, but the right leg was drawn after him.—The same measures were continued; and on the 5th of October he left the Hospital, if not perfectly cured, still in a state to return to his occupation as a gardener.

## CASE CLXXXI.

*Paraplegia of the Upper Extremities, connected with Rheumatic Gout.*

DANIEL MACCARTHY, aged about 45, a very large athletic man, was admitted, under my care, July 8th, 1829. He was a coal-whipper by occupation, and therefore greatly exposed to the vicissitudes of the weather: his present affection is entirely confined to his hands and arms, which are almost completely paralysed; the hands lie nearly powerless on his lap, the fingers closed and drawn inwards; he has just power enough to raise his hands to his mouth, assisting himself by a kind of swinging motion of the body: no pain is experienced by rotation or nodding of the head, except a slight uneasiness low down in the neck: he has rheumatic pains in the feet. Pulse 84, weak: bowels regular: tongue moist, but rather furred. The affection of the hands and arms has been coming on gradually for eight months; and he says that he was affected in a similar way three years before, but after six months recovered so much as to be able to return to his laborious employment. I blistered the back of the neck, and applied a few leeches daily to that part, and ordered the antimonial opiate pill with two grains of calomel twice a day, giving occasional purgatives of colchicum wine, and infusion of senna; however, very little improvement followed, and he continued the calomel, contrary to my orders, till ptialism was produced. I afterwards gave a fair trial to the nux vomica, increasing it gradually from one grain to seven grains three times a day, but without any decidedly advantageous change: still he seemed to gain ground, and expressed himself as being better. At the latter end of September he became the subject of a most severe attack of acute rheumatism in the right arm and both the feet, from which he was relieved by colchicum and the antimonial opiate pill; and in a few weeks he left the House free from all traces of his last attack, and so greatly relieved from his paralytic ailments, as to intend returning to his laborious occupation.

## CASE CLXXXII.

*Paraplegia, connected with Rheumatism.*

JAMES HODGSON, a stout man, aged 35, was admitted, under my care, October 21st, 1829, with complete paraplegia of the lower extremities: this had come on about a month before; and previously to that, for three weeks he had suffered pains in the loins, exactly such as accompany lumbago, which had obliged him to quit his work.—The lower extremities were now completely powerless, and the sensation imperfect, and occasionally sudden and severe spasmodic affections forced him to raise his legs; and it was with the greatest difficulty he retained either his fæces or urine for a few minutes. Cupping, frequent blisters, and a seton to the loins were the local remedies. Colchicum, purgatives, the warm bath, Peruvian balsam, strychnia, and electricity were successively tried during a course of four months with benefit, but not with per-

fect success; two or three, times during his stay in the Hospital he had decided rheumatic attacks in his joints, and he returned home unable to walk without the assistance of sticks.

### CASE CLXXXIII.

#### *Paralysis of the Hands, after frequent attacks of Obstruction of the Bowels.*

MARY JESSOP, a woman of spare habit, aged 31, was admitted under my care into Guy's Hospital, June 9th, 1830. She is the wife of a soldier, and lay-in seven months ago with a fine child, which she now nurses. She says that during the last two years, before her confinement, she was subject to remarkable constipation, so that she was in that short period nine times under medical treatment for severe attacks of the kind: after her confinement, she first began to find an increasing weakness in both her hands, and they are now both precisely in the condition of those of a person affected with the paralysis from lead: she has no other ailments of which to complain, and she still continues to hold her child by means of her arms and in the bendings of her elbows.

I blistered the nape of the neck, paid great attention to the bowels, and gave the Peruvian balsam, and after a few days had recourse to tepid bathing twice in the week. This was continued, with no good effect, to the 5th of July, when she was ordered to take an ounce of the mistura guaiaci every six hours, and to continue the bath. Upon the whole she seemed rather to improve on this remedy; but as I discovered towards the end of the month that she had leucorrhœa, I ordered besides the mixture that she should take the extract of gentian with a grain of the sulphate of zinc three times a day, increasing the zinc from time to time; and the compound alum wash was used locally. Under this treatment she decidedly improved, and her convalescence was assisted by bathing her hands in warm water in which mustard had been diffused: and when she left the Hospital, in the beginning of October, she had very tolerable power in her hands, though they were still far from being completely restored.

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There was in this case so much resemblance to some cases of paralysis from lead, that I could not avoid suspecting that the disease had arisen from that metallic poison, although the patient was not herself aware of any exposure to its influence; and this is the more probable, as there are undoubtedly many sources of poison from lead, which are far from being obvious, as was demonstrated on the first discovery of the cause of Devonshire colic by Sir George Baker, and as is shown by the late investigations of Dr. Paris; from which it appears, that causes hitherto unsuspected greatly promote the solution of lead.

IV. *PARALYSIS FROM LEAD.*

We have abundant opportunity of observing the injurious effects produced by Lead amongst the work-people in the white-lead manufactories, and the house-painters of this metropolis, besides the occasional cases, which arise from accidental exposure to this exciting cause of disease. There are two sets of morbid phenomena connected with this poisonous agency: the one, a state of constipation, probably arising from an approach to paralysis in the muscular fibres of the intestines, which is soon followed by the accumulation of scybala and flatus, and hence violent colicky pains, with furred tongue, sickness of stomach, distention of the abdomen, and sometimes even inflammatory symptoms: the other, a paralytic affection, which seldom extends beyond the upper extremities, and is chiefly confined to the extensor muscles of the fore-arm, in consequence of which the power of raising the hand is in a greater or less degree destroyed. This is often ushered in or accompanied by headache, vertigo, and a sense of weight and pain between the shoulders; and it is generally a sequel of the constipation and colic, often not taking place till after a second or third attack of that affection, but this is by no means constantly the case: thus I once had a waterman under my care, who had lost the power of his hand, without any previous ailment, in consequence of painting his boat; and in a case I shall presently relate, the same fact will appear. I should be inclined to think from what I have seen, that the paralytic affection is more often the result of the exposure to which painters are subject, than of that to which the manufacturer of lead is liable, though the latter has the abdominal affection very frequently. There are certain processes in the operation of painting which are more particularly apt to bring on paralytic attacks; as for instance, the flatting process, in which the white-lead is mixed with a large proportion of the oil of turpentine, which, though its action is not obvious, may very probably prepare the system to receive the impression, or may make that impression more intense. Young plethoric persons, lately come from the country, are very liable to be affected by colic in the white-lead manufactories; and the habit of drinking seems to predispose to the paralytic affection; it is also observed by those who are employed in painting, that a neglect of personal cleanliness often leads to both forms of the disease, and that exposure to cold and wet appears often to be the immediate cause of the paralytic attack.



In the treatment of these diseases, the warm bath, with fomentations and poultices to the abdomen, and the combination of calomel and opium followed by castor oil, will generally be found sufficient to overcome the constipation and colic; but the calomel and other purgatives should be used with some caution, and not continued after the actual necessity for their exhibition has ceased, as the large intestines are in a peculiar and a feeble condition, and not well able to resist severe irritation; so that I have undoubtedly seen, extensive destruction of the mucous membrane of the colon, induced in this disease, by the injudicious use of purgatives: and it is by keeping down the tendency to inflammation that leeches applied to the abdomen, and sometimes to the anus, are found of great service, not only giving relief to pain, but facilitating the action of purgatives.

The diseased condition of the mucous membrane of the colon in cases of this kind deserves well to be borne in mind: the frequent irritation to which the viscus is exposed appears gradually to thicken the cellular substance beneath its mucous membrane, so that the surface becomes thrown up into ridges, thick, hard, and unyielding; and the membrane itself seems to lose part of its power of resisting injury; it becomes abraded, and is discoloured by the *faeces*, and covered with shreds, probably in part derived from the separating and sloughing of the membrane itself, and partly from the effusion of lymph.—It is not only in colic from lead that this condition of the colon exists, but I have seen it take place in other cases of obstinate or habitual constipation; particularly after the employment of much purgative medicine.

In the paralytic affection from lead, as well as the colic, the bowels must claim our constant care, and brisk purgatives should be used; but it is seldom that this alone is sufficient to restore the injured powers, and the process of cure is almost always slow. In the recent attack I generally take blood by cupping from between the shoulders, under an impression that in all probability some inordinate action or congestion exists in the brain and the upper part of the spine: and not unfrequently this idea is borne out by a distinct reference of pain to those parts. I have never had an opportunity, however, of verifying this by dissection, and it is therefore little more than hypothesis, though the practice founded upon it has appeared to me useful. Blisters I have also extensively applied, both in the early part of the treatment, near to the supposed seat of the disease; and afterwards, with a view of stimulating the nerves of the paralytic limbs. All those tonic and

stimulating remedies which are applicable in other cases of chronic paralysis, may be employed in the advanced stages of this ; and the support afforded by splints to the weakened wrists, in the manner recommended by Dr. Pemberton, is undoubtedly useful.

### CASE CLXXXIV.

*Paralysis from Lead, without previous Colic.*

JAMES COATES, aged 36, was admitted, under my care, June 9th, 1830, affected with paralysis arising from exposure to lead.—He had been engaged as a painter for twenty-five years, but never suffered any colicky affection of the bowels. Seven years ago, while occupied in flatting, he felt giddy, with pain in the head, and found that he had lost the use of his hands : for nine months he was unable to feed himself ;—he got well, however, and returned to his occupation. Two years afterwards he was attacked with the same complaints while occupied in using turpentine intermixed with paint, and the disease continued upon him for four months. Three weeks ago pain came on in his shoulders, and he gradually lost the use of his arms. At the time of his admission, the muscles of the shoulders, and those employed in raising the scapula and moving the humerus, appeared greatly affected, as well as the extensors of his fingers, so that his arms and hands were almost totally useless.

Applicentur Cucurbitulæ cruentæ inter scapulas ; et detrahatur sanguis ad ℥xij.

Habeat Pilul. Colocynth. cum Calomel. gr. xv statim, et Misturam Magnesiæ cum Magnes. Sulphate ter die.

Balneum tepidum alternis diebus.

On the 18th, a blister was applied between his shoulders. On the 21st, as he complained much of wandering pains, ten minims of the vinum colchici were added to each dose of his mixture, and afterwards the camphor mixture was substituted as a vehicle for the colchicum ; but it was administered less frequently as the bowels acted freely. On the 5th of July blisters were applied to his arms, and these were several times repeated on different parts. The Peruvian balsam was administered in the beginning of August ; and on the 24th of that month he left the Hospital in a state to resume his work, though strongly cautioned against it, and still very feeble in his arms.

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In this case there was a very direct reference to the head as the seat of complaint at the first attack, and to particular processes in the painting as the exciting cause.

## CASE CLXXXV.

*Colic and Paralysis from Lead.*

WILLIAM SULLIVAN, aged 30, was admitted, under my care, into the Clinical Ward, December 2nd, 1829, affected with paralysis from lead. He had been a painter for fifteen years, and much addicted to drinking gin. During the last five years he had been four times attacked with colic, and the two last attacks had been accompanied by some dropping of the hands; but this had been entirely removed during the intervals.—On the 28th of November, while employed in flatting, he felt a sensation of tightness across the scrobiculus cordis, and a feeling of burning, quickly followed by pain in the umbilical region: this was succeeded by a heaviness and numbness of the limbs, more particularly in the shoulders and arms, with acute pain in the head; his bowels were obstinately constipated. At the time of his admission he laboured under much weakness of the knees and ankles, and had entirely lost the power of extending his wrists: at the same time, though his bowels were freely opened by large doses of senna and castor oil, he complained greatly of griping colic pains, frequently shooting across the abdomen, and following the course of the colon. Tongue furred, rather brown, but moist: pulse 96, rather full: no headache.

Balneum tepidum statim.

Foveatur abdomen.

Habeat Pilulam Antim. Tartar. cum Opio sexta quaque hora; et Misturam Magnesiae pro re nata.

December 3rd. The bath produced some perspiration, and temporary ease from the pain, but it has returned with great severity: he is now perspiring profusely. Bowels not open; pulse 80; tongue slightly furred; abdomen soft and flat, but tender: he has had much pain in the head during the night, but it is less this morning.

Applicentur Hirudines viginti abdomini.

Sumat Olei Ricini ꝑss cum Tinct. Opii ꝑ v statim; et Misturam Magnesiae cum Tinct. Camph. comp. ꝑj ter die.

Repetantur Pilulae.

4th. The leeches relieved the pains around the umbilicus, and he has passed a comfortable night; still some tenderness at the scrobiculus cordis, with the same burning sensation. No stool: pulse 104, with some sharpness: frequent palpitation of the heart; tongue furred; gums becoming very sore, apparently from some mercurial pills which he took before coming to the Hospital.—The paralytic affection unchanged.

Applicentur Hirudines triginti abdomini.

Habeat Olei Ricini ꝑvj cum Tincturae Opii ꝑ v statim, et vespere.

5th. Pain of abomen relieved: complains of intense burning pain about the centre of the sternum, darting through to his back, and increased by drawing a deep breath:

pulse 80, small, but very irregular: bowels freely open: urine thick and turbid: tongue slightly furred: he complains of great palpitation at the heart, and a feeling of nausea.

*Applicetur Emplastrum Cantharidis sterno.*

*Habeat Extracti Hyoscyami gr. iij, Camphoræ gr. ij, sexta quaque hora.*

7th. Has no pain in the abdomen, and but a slight degree of tenderness on pressure. No remains of the pain in the chest: bowels freely open: pulse 112: tongue clean.

*Balneum tepidum, et repetantur Medicamenta.*

9th. Says he has no pain: bowels freely open: pulse 104: the weakness of the wrists rather increased.

*Habeat Misturam Balsam. Peruv. ter die.*

10th. Had his sleep disturbed by a gnawing sensation between the shoulders and down the arms and legs: complains of great general debility: bowels open: appetite good: tongue clean: pulse 108.

*Admoveantur Hirudines xv inter scapulas, et repetantur Medicamenta.*

11th. Has lost the pain in the back, but says he feels weaker than ever: bowels open: pulse 116: urine in very large quantity, and rather high-coloured.

*Applicentur Cucurbitulæ cruentæ inter scapulas, et detrahatur sanguis ad ℥viij.*

12th. Passed a good night, is much relieved by the cupping: bowels well opened: hands very weak: no pain but in the fore-arm.

13th. No return of pain: hands rather stronger.

*Applicentur Cucurbitulæ cruentæ inter scapulas, et detrahatur sanguis ad ℥viij.*

14th. He has no pain, and seems much improved.

*Applicentur Cucurbitulæ cruentæ inter scapulas, et detrahatur sanguis ad ℥viij.*

15th. He felt so much better as to express a desire to return to his work, and actually left the Hospital, for that purpose, within a few days.

In the month of September following, this man again applied to me as an out-patient, with a return of his complaint. He stated that he had continued quite well from the time he left the Clinical Ward, till three weeks ago, when, being employed in rubbing down a wall, to prepare it for fresh painting, he was attacked with violent pain in his bowels, and was constipated for eight days; at the end of which time he had severe pain between his shoulders, and the same night he lost the use of his right hand, which was now affected with the usual form of paralysis from lead.

In this case the severe affection of the bowels seemed always to precede the paralytic affection, and the head was decidedly the seat of morbid action, probably congestion, which the cupping appeared in a marked manner to relieve when the bowels had been previously regulated.

## CASE CLXXXVI.

*Paralysis from Lead relieved by the external application of Strychnia to the affected limb.*

CHARLES GREGORY, aged 32, by business a painter, at which employment he had been engaged for the last twenty years, was admitted, under my care, into the Clinical Ward of Guy's Hospital, November 4th, 1829. He did not feel the effects of the paint for the first four years, but was then attacked with colic, and was cured in a week, and remained perfectly well for the five or six years following: during this time he became much addicted to drinking spirits, and neglected to clean his hands from paint before going to bed;—to this he attributed his second attack, which happened about ten years ago: this attack was more acute and of longer duration than the former; he was two months before he was able to resume his employment: his hands were not affected at this time. On recovering, he left off his habit of drinking, and continued well for four years, when he was again seized with pain and obstinate costiveness of the bowels, accompanied with pain in the shoulders and arms, and perfect inability to raise the upper extremities: he was not able to work for five months, and has never completely recovered the power of straightening his hands. Has continued in the same state and in the same employment until the last six weeks, when he was seized with rigors, obstinate constipation, pain in the upper extremities, and increased difficulty in extending the hands. After taking powerful cathartic medicines, on the fourth day his bowels were opened, which much relieved him, and left him nearly in his present state. He has now but little pain in his arms, and is unable to raise them higher than at right angles with the body. Great tremor, and no power over the extensor muscles of the hand: has a general feeling of weakness: no pain of abdomen or head: bowels regular: tongue clean: pulse 80.

Habeat Decocti Aloes Comp. ʒss ter die.

Applicetur Emplastr. Cantharidis cubito.

Nov. 5th. Much the same: had splints placed along his arms and hands, to keep the wrists extended.

8th. Little change: the twentieth part of a grain of strychnia dissolved in alcohol applied to the blistered part, over the extensor muscles on the fore-arm.

9th. At five o'clock yesterday had a sudden pain in the right arm, which he described as similar to a slight electric shock; it lasted but for a moment, and did not return.

10th. Had yesterday the tenth of a grain applied at two o'clock, and at five a heavy dull gnawing pain first attacked the lower part of the blistered surface, which gradually increased up to the shoulder and down to the fingers, with slight startings of the fingers: these sensations lasted for two hours.

11th. Had the eighth of a grain of strychnia applied yesterday : had more acute pains than before, but of shorter duration, and following more quickly after the application of the strychnia.

12th. The sixth of a grain was applied yesterday : the effects came on in half an hour afterwards, and lasted a quarter of an hour; the pain was more like a sensation of numbness than before.

13th. The sixth of a grain, in the form of an ointment, was applied with little if any effect to the arms, but they are decidedly relieved.

Applicetur Empl. Cantharidis cubito.

15th. The blister having risen well, the sixth of a grain of strychnia was applied yesterday in substance : the effect came on in half an hour, and lasted sharply for a quarter of an hour like slight electric shocks.

16th. The fourth of a grain yesterday has not produced more decided symptoms.

17th. One third of a grain occasioned pain for half an hour, and towards evening he had one or two spasmodic contractions of the arm.

18th. No strychnia was applied yesterday.

20th. One third of a grain applied, with the same symptoms.

22nd. No strychnia has been applied since the 20th. On visiting him this morning the extensor muscles of the fore-arm and the biceps were contracting spasmodically.

25th. One third of a grain of strychnia which was applied yesterday, is exciting spasmodic contractions of the extensor muscles of the fingers and the biceps : the right wrist is gradually gaining strength, and from being the weaker is becoming the stronger of the two.

One third of a grain was applied almost daily till the 15th of December, with the effect of producing very marked spasms, and a decidedly good result, so far as could be judged from the fact that the right arm became by far the stronger of the two.

15th. A febrile accession took place followed by erysipelas of the face, with which he was severely affected for many days ; and the strychnia was not afterwards applied : he slowly improved, and after several weeks left the Hospital much better with regard to the paralysis, but still weak.

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In this case we see the effects of intemperate habits and the neglect of personal cleanliness in favouring the disease ;—we also find the paralysis not taking place till after the third attack of colic. Of the efficacy of the strychnia some doubt may be entertained ; for certainly, although its immediate effect in producing spasms was plainly shown, its influence on the disease was very slow, leaving therefore some room to doubt whether the stimulus of the blister and other causes might not have had a large share



in the amendment. The remedy was applied, with as much regularity as the fear of producing dangerous effects seemed to authorise, for above five weeks, and certainly on the whole the result was such as to incline me to think well of its action.

### CASE CLXXXVII.

*Colica Pictonum, with Paralysis of one arm and severe Cerebral Affection from exposure to metallic poisons.*

WILLIAM ALMOND, aged 43, was admitted under my care, into the Clinical Ward, October 28th, 1830. He reports that he has always lived in the country, and enjoyed good health. About fourteen weeks since he came up to London, and entered into a paint manufactory, where he was chiefly employed in mixing and grinding preparations of lead and also of arsenic and mercury, and after continuing his occupation for seven weeks first felt a pricking and cutting sensation about the abdomen, accompanied with obstinate costiveness: for this he took some opening medicines, which partially relieved him. Seven days afterwards he first felt a numbness of his right hand, with some tremor; he then left his employment, and soon perceived a dimness in his sight which was attended with violent headache; his bowels again became costive, with a sense of tightness across the epigastrium; at the same time he had a copious expectoration streaked with blood. Cupping at the back of the neck, castor oil with other aperient medicines, relieved him for two or three days. Since that time he had been gradually becoming worse, the pain across the body increasing.

October 28th. He at present complains of occasional acute pain at the back of his head, dimness of sight, pain and tenderness in the epigastric region, costiveness, (the bowels not having been acted on since the 25th,) and numbness of the right hand and wrist. The right angle of the mouth slightly drawn upwards, and he has difficulty in protruding his tongue: tongue slightly furred: urine high-coloured: pulse 80 and full.

Sumat Cal. gr. v; Opii Pulv. gr. j statim, et Ol. Ricini ꝑj post horas quatuor; et repetantur vespere et cras mane si opus fuerit.

29th. Passed a restless night, suffered much pain across the abdomen, which was relieved by the passing of two copious evacuations of an unhealthy character: much troubled with severe cramps in his legs; perspired freely during the whole night. Numbness and tremor of the hand much the same; tongue cleaner: pulse 80, not so full as yesterday.

Applicentur Cucurbitulæ cruentæ scrobic. cordis, et detrahatur sanguis ad ʒxij. Repetantur Pil. et Ol. Ricini ꝑj si opus fuerit.

30th. Had severe headache all yesterday afternoon, which towards evening increased with great dimness of sight: about eight o'clock sprung out of bed in a delirium, which

lasted three or four hours. Mr. Stocker saw him, and ordered fourteen leeches to be applied to his temples, and a blister to his neck; and directed that five grains of the extract of hyoscyamus should be taken every four hours. At twelve he became more composed, and slept soundly for four hours. This morning the pain of the head is less severe, but he describes it as darting across the head and moving from place to place. The cupping relieved the tightness and tenderness at the scrobiculus cordis, the abdomen being now soft and bearing firm pressure. Bowels once relieved; motions greenish: tongue cleaner: pulse 88, easily compressible: skin moist. He experienced acute cramps in the legs during the night.

Abradatur capillitium, et applicetur Embrocatio communis.

This disease proved somewhat obstinate, being attended with occasional wanderings of mind and general agitation, which gave it the character of a combination of delirium tremens; and when the local pains in the head rendered leeches to the part necessary, the loss of blood was not well borne, and it was not till November the 27th that he was dismissed cured.

In this case, it is not impossible that the deviations from the precise train of symptoms which usually attends the poison of lead, might arise from the combination of unwholesome ingredients used in the paints: the symptoms, however, were quite sufficient to mark the influence of lead. The reference of complaint to the head was very decided.

### CASE CLXXXVIII.

*Paraplegia chiefly affecting the Upper Extremities, and possibly depending on the influence of Lead.*

EDWARD BRIDGER, aged 45, was admitted under my care, Jan. 13th, 1830, labouring under a paralytic affection influencing the whole body, but more particularly the arms; these were quite powerless, and nearly resembled limbs affected by paralysis from lead. The hands were wasted, and particularly those muscles which form the balls of the thumbs. He walked with difficulty, dragging both his feet along the ground, but without having need of support. His articulation had been originally rather imperfect, but we were told that this defect had increased, and he now spoke very slowly and with great effort: the muscular fibres of his chin were constantly in motion, and the same was observed on his tongue, when he tried to protrude it. We learnt that all his life he had been occasionally the subject of bowel complaints. For the last two years he had worked in the mail-coach manufactory, and was occupied as a labourer to put on the rough colour which forms the groundwork of the finer paints, chiefly using lead, oil, and turpentine; a part of the trade which, he says,

often gives the drop-hand. He had not however suffered from the occupation, as far as he knew, but about eight months before his admission began to experience a tight cough, and a numbness of the thumb and index finger of the left hand; his speech then became slightly affected, and the sensation of both hands defective, but particularly of the left; his legs likewise became weak, but the loss of sensation was nearly confined to the hands. He said he had never felt any pain in the back or the neck, and that he had never experienced giddiness, except a little during the last two months; and he had occasional difficulty in swallowing. After he had been in the Hospital a few days, it was found that he frequently had attacks of a very peculiar spasmodic cough, with a kind of strangulation, and these were often followed by fits which bore a completely hysteric character, in which he sobbed and cried and laughed till he was quite overcome.

The remedies I employed were, in the first place, cupping once or twice at the nape of the neck, a grain of calomel twice a day and the haustus sennæ, to keep up a good action on the bowels. From the 29th of January to the 26th of March he continued the use of strychnia, beginning with the tenth of a grain, and quickly increasing it as far as a quarter of a grain, three times a day. The shower-bath was employed. Free purging with aloetic and resinous purgatives was had recourse to; electricity was tried; counter-irritation, by frequent blisters and by tartar emetic liniment, both on the neck and over the scalp; a seton was kept open for several weeks in his neck; camphor and æther were given; various bitters and tonics were at different times used; and the mustard whey, to the extent of half a pint daily, was continued through the greater part of May and June; and he has since taken the infusion of mustard, and had splints applied to his hands.

All these remedies, however, produced no permanent effect upon the disease: his general health decidedly improved; and while taking the mustard whey he appeared for a time to gain power a little, but the chief symptoms remained; the powerless state of the hands, the slow articulation, the frequent hysteric paroxysms, were the same.

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This case still remains under treatment, with little hope of any permanent relief being afforded. The general character of the symptoms, though they vary in many points from the cases which have gone before, and more particularly in the occurrence of paroxysms resembling hysteria, brings this case into close connection with the others; and the difference may probably depend on the diseased action, or the resulting changes, influencing more particularly the par vagum and the associated nerves.

It appears probable that the occupation of this man had subjected him to the influence of lead, and that this had been the immediate cause of the disease under which he laboured; and we cannot avoid perceiving that a

striking resemblance may be traced between that paralytic affection which results from lead, and many of the foregoing cases in which paraplegia has chiefly attacked the hands.

I am the more inclined to attribute the disease in this case to the effects of lead, from calling to mind a case, which was published many years ago, in the *Edinburgh Medical and Surgical Journal*, and which was, at the time, the cause of some controversy between my late valued friends Dr. Edward Percival and Dr. Bateman. The subject of that case was a coach-painter, who became affected with paralysis of all his limbs, combined with spasmodic action of some of the muscles and a kind of paroxysm, which occasionally went on till it terminated in crying. In all these points the resemblance between the cases was very striking ; but remedies produced much more effect on the one than on the other, for in Dr. Percival's case a short course of purgative medicines completely cured the disease, and a little tonic remedy restored the patient to his former health.

## V. CONCUSSION AND PRESSURE FROM ACCIDENTS.

Although it is not my intention to enter into a minute description of the effects of falls, and blows upon the head, and still less into the modes of treating such accidents,—subjects which, properly belonging to the province of the surgeon, have been ably explained by many great surgical writers, and particularly of late by Mr. Brodie, in his paper in the Transactions of the Medical and Chirurgical Society of London,—yet I think it right not entirely to pass over these accidents, because they frequently lay the foundation for diseases which the physician is called upon to alleviate.

The few following cases have all of them, but one, arisen from falls; and they will serve to show the nature of the immediate mischief which results from accidents of that kind, attended by complicated symptoms of concussion and compression, and likewise to point out the more remote ill effects which may follow, though the first danger be overcome.

## CASE CLXXXIX.

*Concussion from a Fall and Fracture of the Skull, with Effusion of Blood outside the Dura Mater, and Lacerations in the Substance of the Brain.*

———, March 11th, 1829, at half-past twelve o'clock, P.M., fell sixteen feet into the hold of a vessel, but was reported to have broken his fall, in some degree, by striking on his stomach upon a ridge of wood. However, there were no symptoms indicating severe injury of the abdomen, nor was there any bruise to be discovered in that part. He was brought, one hour and a half after the accident, to the Hospital, in a state of complete insensibility, without any apparent power of voluntary motion. Respiration slow and very laborious, so that the external muscles of the chest and neck were called into violent exercise in deep inspiration. Pulse 120, small, and irregular: there was evident contusion on the left temple. Mr. Key thought, from the severity of the symptoms, that the basis was fractured; and perceiving that there was great compression of the brain, he determined, as the only probable chance of giving even temporary relief, to cut down on the part where the chief injury seemed to have been sustained, and remove a portion of bone, if necessary. He found a fracture in the bone, and an angular portion was easily withdrawn: it was then perceived that a quantity of blood lay between the dura mater and the skull, which immediately flowed out in considerable quantities, apparently from the meningeal artery, and it was some time before this hæmorrhage could be repressed. After the blood had been

discharged, it was observed that the dura mater, which had receded from the skull by the pressure of the blood, returned in some degree to its situation. The heat of the body was somewhat increased, and the pulse became a little stronger and slower, but about half-past five o'clock he died.

#### SECTIO CADAVERIS.

Much blood effused into the cellular membrane of the scalp, particularly on the left side. A fracture extended nearly in the direction of the coronal suture upwards, passing quite over to the right side, where it was crossed by a fine transverse crack, which was not interrupted by the suture. On the left side, the fracture continued down to the basis and to the opposite side of the foramen magnum; but besides this, the skull, at about the distance of a quarter of an inch all round the foramen magnum, was fractured in a circle, and the part driven slightly inwards.

The dura mater was separated from the skull for an extent of about two inches square, and some clots of blood nearly filled the space between. On opening into the dura mater, a small quantity of blood escaped. The dura mater generally was easily torn from the skull. One of the convolutions of the brain, immediately below the chief seat of fracture, was lacerated externally, the cineritious matter appearing softened and broken down with some ecchymosis; and along the top of the neighbouring convolutions, discolouration had taken place, from pretty frequent dark specks, like the points of vessels, giving out blood in the substance of the cineritious matter. (Plate XX. Fig. 4.) The left ventricle contained a little fluid, and this was very slightly tinged with blood. The right ventricle contained about a dram of fluid, decidedly and deeply tinged with blood, but there was no coagulum; this tinge of blood seemed to have been derived from the rupture of one of the vessels, coming from the large vessel running along the corpus striatum, for around this was a small ecchymosis. In the base, some sanguineous fluid, and several small clots of blood, were distributed amongst the origins of the nerves and the vessels forming the circle of Willis. Cutting into the crura cerebri and into the white central substance of the cerebellum, several spots of ecchymosis showed themselves in both the hemispheres, and one, as large as a cherry-stone, close to the corpus rhomboideum of the right side. (Plate XX. Fig. 2 & 3.)

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In this case the injury was of so overwhelming a character, that it was impossible the man should rally even for a short time ; and we see brought together most of those appearances which are produced by severe violence : —extensive fracture unchecked even by the sutures, blood effused between the dura mater and the skull, the brain lacerated not only on the convolutions but in the substance, and blood effused into the cavities.

### CASE CX.

#### *Concussion with Laceration of the Brain.*

A YOUNG woman fell by accident over the railing of a well-staircase, and was precipitated from a considerable height to the bottom. She was taken up senseless, and remained in that state till the time of her death ; nor did bleeding, leeches, or any other remedies which were employed, afford apparent relief. During two or three days she was agitated with constant involuntary motions, requiring three or four persons to restrain her in bed. She became gradually more comatose, with an approach to apoplectic stertor, and died five or six days after the accident.

#### SECTIO CADAVERIS.

On raising the skull and the dura mater, it was obvious that blood was effused and disseminated over the whole brain, underneath the arachnoid ; in two or three parts, on the side of the right hemisphere, the surface of the convolutions was lacerated so as to be discoloured and soft, to the extent of a sixpenny piece ; and on the anterior part of the left there were lacerations of the brain, but chiefly superficial. The colour of the brain was rather of a dull white, and there were many bloody points, of divided vessels, from which fluid blood issued ; but there was no marked disorganization of the cerebral substance, till the superior parts had been removed quite to the level of the corpus callosum ; where, close to the posterior part of that body, a cluster of little points of ecchymosis was disclosed ; and on cutting deeper, it was found that a portion of the cerebral substance, as large as a small walnut, was lacerated and soft, and thickly interspersed with dark bloody points and coagula ; and a very small rupture, of the same kind, was found more anteriorly.

There was considerable bloody effusion in the base.

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In this case, though there was no fracture, the violence of the injury was such, that probably before the patient could recover from the effects of the concussion, the effusion of blood, which gradually took place, produced fatal compression.

### CASE CXCI.

*Effusion of Blood between the Skull and Dura Mater, and Laceration of the Brain, in consequence of a Fall.*

— PHILLIPS, aged 38, a tall powerful man, was employed as boatswain at a large wharf below London Bridge; December 16th, at five P.M., he fell down the hatchway of a ship, a depth of eleven or twelve feet; he was taken up insensible, and brought to the Hospital immediately. On his arrival he had partly recovered the powers of speech and motion, but they were still very imperfect: his movements and his attempts to speak were precisely those of a man deeply intoxicated, though it was said by those who had last seen him before the fall (for he was alone at the time), that he was perfectly sober. He had no recollection of the accident, and was not sensible of having suffered any injury; he staggered in his gait, and stammered in his speech; he violently resisted any attempts to controul him, but if left alone he sank into a heavy stupor. His pulse was 56, when quiet, but became more frequent on exertion; it was irregular in force and frequency: pupils semi-contracted, and nearly fixed: surface of body cold: in the evening he had free evacuation from the bowels, and he also vomited; in the night he became rather violent, insisting on leaving his bed, and staggering about the ward.

By the next morning (17th) reaction had to some extent taken place: his pulse was stronger, from 60 to 70, and his skin hotter; he answered questions with difficulty, his language being incoherent and speech scarcely articulate, and he complained of pain in the head.

*Fiât venæsectio ad ʒxviij.*

The bleeding made the pulse smaller and more frequent; bowels scantily opened by the action of the enema.

*Habeat Haust. Purg. et Ol. Tiglii gtt. j.*

In the evening the pulse became full and labouring, and the cerebral symptoms increased in severity; he was therefore again bled to sixteen ounces.

18th. In the night he became so violent as to require confinement. This morning fresh symptoms have appeared; he is in a state of stupor, but may be roused to answer questions: the muscles on the left side of the face are paralysed, those of the right in strong action; right pupil dilated; muscular power and common sensation both much impaired: pulse, under some excitement, 120 and small, later in the day 68. During the day his coma increased, and the distortion of the face was more striking.

Mittatur sanguis ex Arteria Temporal. ad ℥x.

Habeat Hydrarg. Submur. gr. v, Ol. Tiglii gtt. j.

19th. During the night the coma and partial paralysis increased. At 4 A.M. the left side of his face was affected with slight spasmodic twitchings; these occurred at intervals of from five to twenty minutes, each attack became more severe, and affected more and more of the muscular system, until at length the whole of the left side of the body was affected with violent convulsions; his eyes were rolled upwards, and to the left side; the jaw shook violently; the muscles of respiration, speech, and deglutition were all thrown into irregular action, producing at each attack a struggle that seemed about to terminate life: this passed off, however, with a few deeply-drawn respirations, as if to recover breath, and the patient lay comatose till the next fit: pulse 150, very small and quick; skin hot.

Admoveatur Emplastr. Cantharidis capiti.

In the evening the convulsions were more frequent, but less severe: the pulse was reduced to 100, and was fuller and stronger; face flushed; tongue and mouth dry.

Fiat venæsectio ad ℥x.

Habeat Hydrarg. Submuriat. gr. v.

20th. There was marked improvement; he recognized his friends, and understood their conversation, but could not answer articulately; his only complaint was of pain in the head: the convulsions continued, but were less violent; they were chiefly confined to the left side, but now and then they affected the right also: pulse 112, small, weak; skin cool.

Applicetur Emplastr. Lyttæ capiti.

Sumat Hydrarg. Submuriatis gr. v.

21st. Convulsions more severe to-day; the right side of the body retains the power of motion, the left has none, except when convulsed, and has lost its sensibility. During the day he became much worse, in the intervals of the fits lying powerless and exhausted: pulse 130, small, thready; skin cool; face sunk; fæces and urine passed unconsciously. Early next morning he died.

#### SECTIO CADAVERIS.

On removing the scalp, much blood was found effused beneath it, particularly over the posterior part of the head: a considerable quantity of blood was effused between the skull and the dura mater at the posterior part, corresponding to the occipital and part of the parietal bones: this was chiefly on the right side, but extended also to the left, where it was so closely attached to the bone as to require some force to remove it,—apparently therefore less recently effused than on the right, where the quantity was more considerable and the clot less consolidated. Raising the dura

mater, the clot of blood on the right side was found to have produced a decided depression on the brain beneath, and there was a small clot of blood beneath the dura mater at that part: the quantity of blood under the arachnoid was small, but the spaces between the convolutions were in various places slightly filled with blood and bloody serum, both on the right and left side, but more particularly on the right.—On the right side, in many parts, the summits of the convolutions were lacerated, and small clots were imbedded in the cineritious substance, which was in some places quite softened down into the clot, whereas in others the clot seemed well defined: this lacerated and broken state, though chiefly confined to the cineritious, descended sometimes a little into the medullary substance, but no where above a line in depth. The part most severely lacerated was the middle lobe of the right hemisphere, but other neighbouring parts had also suffered, and several small clots from laceration were seen in the left hemisphere also: many similar coagula, of the size of large pin-heads, were found in that portion of the corpus callosum which forms part of the arch of the left ventricle: this was the only internal part of the brain injured.

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In this case, it appears from Mr. Morley, (by whom, with the permission of Mr. Morgan, I was supplied with the careful detail of symptoms,) some question arose respecting the cause of death; for the patient had frequently exhibited symptoms of cerebral disorder. In his youth he was subject to bleeding from his nose, with uneasy feelings about the head. During the last ten months he had more decided symptoms, spasmodic twitchings of his limbs, singing noises in his head, and once or twice he had fallen down in a state of insensibility, with slight apoplectic symptoms; and, on the very day of his accident, he had bled from the nose, and had fallen asleep during the day. Still, however, with all these indications of frequent cerebral congestion, I think from the appearances after death, as well as the symptoms, we can scarcely hesitate to ascribe his death to the fall, although very possibly the lethargic state in which he was, led to the accident, and greatly increased the chance that his brain would be injured by the concussion. The vomiting, the sopor, —from which he could be roused, but into which he soon relapsed,—and the occasionally excited pulse, are all the symptoms of concussion; while the more violent excitement undoubtedly arose from the cerebral irrita-

tion and inflammation which succeeded; and the states of alternate convulsion and insensibility, quite unlike the effects of apoplectic effusion, were in complete accordance with the laceration of the brain, and the escape of blood, which would follow from so severe an accident.

Looking to these three cases of injury from falls, we perceive that the immediate effects produced by such violence may be concussion and fracture, either alone or complicated in various ways, and these again combined with pressure. The fracture may take place either at the part where the blow is inflicted, or at any distant part, but more particularly at a part nearly opposite to the blow, or at the basis in various directions; and the fragments of bone may be either displaced or not, producing by their points and edges more or less injury to the membranes or to the brain itself. The dura mater may be detached or lacerated; blood may be effused between it and the bone; or blood may be effused internally between it and the arachnoid. The arachnoid and pia mater may be lacerated, or may be detached from the brain; blood may be effused between the arachnoid and the brain. The cineritious portion of the brain may be lacerated, either by the pressure of the bone, or by the tearing away of the pia mater: the medullary substance may likewise be lacerated, or vessels more or less numerous may be ruptured in its substance, and blood may even be effused into the ventricles.—Such are the varied tangible disorganizations produced by external violence: to which of these, or whether to any of them, the symptoms of concussion are to be ascribed, may be a question.

The symptoms attendant on severe blows of the head vary of course according to the degree of injury sustained. Frequently there is an immediate abolition of all consciousness for a longer or shorter time, that condition sometimes continuing for many hours; a perverted action of the stomach succeeds to, or accompanies this, leading to the ejection of its contents; then a state of sopor comes on, from which the patient may to a certain degree be roused, but frequently only so far as to give incoherent answers, and he may remain in a state approaching to idiocy for several days or weeks; the pulse all this time variable, but inclined to be accelerated on the slightest excitement: the pupils sometimes contracted, at other times dilated, and acting quite irregularly under the stimulus of light: after a few hours or a few days, all this subsiding, and perfect recovery the result: but there is no knowledge of what has passed, and frequently not

even of the events which immediately led to the accident. On other occasions, frequent rambling delirium, going on to violence; sometimes intolerance of light, and screaming convulsions, or paralysis, and not unfrequently apoplectic coma and death.

Such is pretty nearly the train of symptoms attendant on severe blows; but the former part alone belongs properly to concussion: the violent delirium, the intolerance of light, and the convulsions, with their concomitant symptoms, belong to high irritation or to inflammatory action; and convulsion and paralysis may arise in the progress, and apoplexy come on at the conclusion of fatal pressure. What, then, is the immediate state of brain producing the symptoms of concussion? Of this we can only judge from the nature of the injury traceable when death occurs; and as that often happens without the concussion having been so severe as to prove the immediate cause of the fatal result, we have sometimes an opportunity of investigating the early appearances; and almost the only appearances which can be considered peculiar are the minute lacerations of the brain and vessels, which occur both upon the surface, and deep in the substance of the mass; and we are led to conclude, that the violence done to the brain, if it does not always go the length of producing these appearances, has at least such a tendency, and that it is this rupture of the brain, or an approach to it, with some consequent congestion in the vessels, which gives rise to the peculiar symptoms of concussion.

If, then, in every case of concussion some such injury may to a greater or less degree be occasioned to the brain, we easily see in this, a source of much subsequent mischief; for each of these injuries requires its peculiar mode of healing, and each is liable to run into some more extensive mischief. Thus the fractured bone, though when quite simple and without displacement it will probably be united without the least inequality of surface or the deposit of bone in such a way as to produce irritation, may be united with a very different result if the nature of the displacement be such as to require a thick mass of bone for the repair, and the uneven surface may become a source of irritation or pressure as long as life continues: so, likewise, from the injured dura mater fungous growths spring out; on the arachnoid, lymph may be deposited; and with regard to the lacerated portions of brain, although we do not exactly know the stages by which repair is brought about, we have reason to believe that it is analogous to the repair of apoplectic injuries, requiring therefore much time,



and calling for great caution in the management of the invalid for a long period after the first symptoms have subsided.

Although I cannot speak positively, yet I am inclined to think that the appearance in the brain of Saunders might have been the result of the laceration attendant on concussion, for his employment had put him much in the way of such injury; and we had no very certain accounts of apoplectic seizure.—I am also induced to believe that the superficial ulcerations in the Cases LXXI. LXXII. (Plate XIII.) and others, were the result of that kind of superficial laceration which is depicted in Plate XX. Fig. 4.; and at all events, some such ulcerations as these are very likely to be the result of the laceration of the brain.

### CASE CXCI.

#### *Partial Paralysis in consequence of a Blow on the Vertex.*

JOSEPH PARNICOT, aged about 36, was admitted into Guy's Hospital, under my care, April 28th, 1830. It appears that on the 5th of November last he fell from a wall, thirty-six feet high, upon his head, and lay senseless for six hours: since that time he has been subject to frequent attacks of giddiness, weight in the head, and partial loss of power of the right side. On the top of the head, a little to the back part, there is a spot about the size of a half-crown piece, which is very slightly discoloured, and has on its surface an exudation of moisture without any apparent abrasion: this part is always painful on pressure, which is accompanied by a peculiar sensation down his limbs; and any sudden fright or exertion is apt to excite uneasiness in this point particularly: his neck seems stiff, and all attempts at motion or rotation cause some pain; he suffers occasional noises in his head, and difficulty of speech. A seton was introduced into his neck, one grain of calomel given three times a day, and great attention paid to the bowels; and on one occasion he was cupped behind the ears: on this plan he improved considerably.

June 25th. He suffered a very severe paroxysm of pain for three hours last night, which he describes as if a probe were passed into his brain, and it seems entirely to have deprived him of his senses for the time.

29th. Applicetur Emplastrum Cantharidis parvum vertici.

July 2nd. He has suffered more than usual from pain in the head, which he ascribes to considerable pressure having been made on the part with a view to ascertain as far as possible the state of the bone.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒx.

5th. Headache continues very severe.

Sumat Solutionis Mineralis ℥ iv ex Infuso Cascariillæ ter die.

This he continued for a fortnight, and he thought he derived considerable benefit; however, no permanent change appeared to have taken place, and at his own request he left the Hospital.

In this case, there can be no doubt that very serious injury was sustained by the brain and its membranes; and the probability appears to be, that some adventitious growth has been the consequence of the inflammation and the attempt set up to repair the mischief. It is not possible to speak of the precise nature of the morbid change, but it is by no means improbable that it consists either of some fungoid growth from the dura mater near the situation of the blow, or of some adventitious deposit about the basis, where there is reason to suspect, from the nature of the blow, and the difficulty of moving the head, that fracture may have taken place; or it may be some slow disorganization in the brain itself, from the laceration of its substance.

### CASE CXCIH.

*Paralysis, chiefly affecting the Upper Extremities, arising probably from the Effects of a Fall.*

THEOPHILUS AVORY, aged 47, was admitted, under my care, into Guy's Hospital June 30th, 1830. About eighteen months previously he had been in Lazarus Ward on account of an injury to the back of the head, sustained by a fall in St. Catherine's Docks from the height of forty-two feet. At that time he had been senseless for half an hour, and was under the care of Mr. Bransby Cooper for several weeks, with some symptoms both of concussion and of compression. He got quite well, and returned to his occupation as a slater's labourer, in which he often carried considerable weights upon his head. For the last five weeks he had been somewhat unwell, with pain in the lower part of the chest and obstinate constipation, ascribed by his medical attendant to the effects of a hernia, which, however, was always quite reducible. He had continued his work till ten days ago, when he awoke in the morning and found a great diminution of power, and loss of sensation, in his arms. He denies ever having had pain in his head, and the motions of the atlas and of the dentata are not impeded, but the power of his arms is greatly diminished, and they are subject to tremors; the fingers are spasmodically drawn, and he seems to have no command over them: he has likewise great difficulty in walking; his mode of speaking is agitated, and his articulation somewhat indistinct: there is no paralysis either of the bladder or rectum: tongue furred at the centre and base: pulse 96, full.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad 3xx.

Habeat Hydrarg. Submur. gr. v statim; et Olei Ricini ʒvj post horas quatuor.

July 1st. Symptoms much the same, but he thinks he derived relief from the cupping.

Radatur caput, et postea applicetur Embrocatio communis.

Cucurbitulæ cruentæ inter scapulas ad 3xiv.

Sumat Hydrarg. Submur. gr. j ter die.

5th. Mouth sore: he extends his fingers better, and moves them more freely.

9th. Repetantur Cucurbitulæ cruentæ; et habeat Misturam Magnesæ bis die.

12th. Fiat Setaceum nuchæ.

He continued rather improving, but without any marked change, till the 31st, when he had an attack of rheumatism in his left knee. Half a dram of vinum colchici was added to each dose of the magnesia mixture which he was taking before.

August 3rd. Decidedly improved, and able to walk about the ward, though the knee is still painful: he has lost the agitation of his manner, can bend his arm freely, and has nearly recovered the use of his fingers, though he is still unable to raise his arm.—He continued the same remedies till the 9th of September, when he left the Hospital to go into Devonshire, being then perfectly able to walk about and to assist himself. He remained in the country about two months, and on his return his arms were still confined in their action, but otherwise he was quite well.

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In this case, we have another instance of disease which may be ascribed to the slow operation of some cause originating in the injury sustained by a fall, though, as in the last case, it is impossible to speak with precision as to its nature: in both these instances, but more particularly the latter, remedial measures have been employed with the effect of greatly mitigating the symptoms.

The present case bore so strong a resemblance to some paralytic attacks arising in consequence of exposure to lead, that I was induced to make very minute inquiries as to the possibility of this being the cause, but I could discover nothing to countenance this supposition.

VI. *PRESSURE ON THE SPINAL CORD FROM DISEASE OR ACCIDENT.*

When pressure is made by any cause upon the spinal cord, the consequence is universally, as far as we know, derangement in the functions of the parts supplied with nerves originating below the seat of injury from that portion of the cord on which the pressure is made. Whether the parts act voluntarily or involuntarily; whether employed in motion or in sensation, they lose the power of performing their peculiar functions to a certain degree, proportionate to the degree of pressure sustained.

Some of the cases which have been lately related bear indeed upon this subject; but I would now particularly refer to those in which pressure is made rather from causes external to the cord itself and its membranes, than from disease of either of those structures.—Pressure on the spinal cord is the result either of disease or of accident. In scrofulous subjects more particularly, inflammation, suppuration, and absorption are very apt to take place in the complicated structure of the spinal column, and the body of the vertebræ being in part destroyed, the regular continuity of its canal is interrupted, and pressure on the spinal cord is the necessary result: sometimes the same effect is produced by some external cause, as an aneurismal tumour, producing ulceration or absorption.

One of the most frequent situations for disease is the articulating surfaces of the two first cervical vertebræ; for though the early part of the process and the ulceration of the softer structures produce no pressure and no paralysis, yet after a time the mischief either becomes so great as to allow of displacement and pressure, or the bony matter is irregularly deposited, and thus pressure is produced.

The accidents which produce pressure on the spinal cord are chiefly occasioned by falls and blows, or by weights passing over the body.

I shall detail but very few cases of either of these forms of disease, confining myself to some in which the cervical vertebræ have been the seat of spontaneous disease, and to two or three in which accidents have produced displacement and pressure in other parts of the column; cases of which kind necessarily vary with every variety in the accident inflicted.

The three following cases have all been communicated to me by my friend and colleague Mr. Key; and they will serve to illustrate the chief circumstances attendant upon the ulceration of the upper cervical vertebræ.

## CASE CXCV.

*Slight Paralysis from disease of the Cervical Vertebrae.*

"IN 1823, I was requested to see Miss T——, aged 13, who for about twelve months past had been troubled with pain in the neck, which at first was regarded as the effect of a common cold. The pain not going off, but being unattended with any enlargement of the neck, Mrs. T—— still continued to look upon it as unimportant, but applied to her usual medical attendant, who treated it as a glandular affection. She was afterwards placed under the care of a surgeon, whose treatment was chiefly medical. Her pain continued to increase during the winter of 1822; and towards the spring of 1823 she could not rise from the horizontal position without extreme suffering, being at the same time obliged to support her head by placing her hands on each side. In March, when I first saw her, she was emaciated, and her countenance betrayed much suffering.—On examining her neck, there appeared a general fullness, which gave her pain on pressure: she had the power of slightly moving the head backwards and forwards, but the lateral movement was accompanied with so much pain that she could not be prevailed upon to attempt it.—The case being evidently an affection of the two upper cervical vertebrae, suitable treatment was adopted. At the end of about a fortnight, I perceived at the back of the pharynx a tumour, which yielded on puncture about three ounces of pus, and which I concluded had communication with the diseased spine. This gave her considerable relief: but towards the end of the summer her emaciation and sufferings had become greatly increased. A fortnight before her death she was seized with vomiting whenever food entered the stomach; this was allayed by a blister applied in the course of the par vagum in the neck: she had convulsive twitchings of the upper extremities, and a slightly paralytic affection of one arm. She sunk gradually."

## CASE CXCV.

*Disease of the upper Cervical Vertebrae.*

"DURING the winter of 1828, I saw in consultation a patient of Mr. Parsons of Godalming, who appeared to labour under an affection similar to the last, with a strong tendency to phthisis, which had been warded off by the judicious treatment of Dr. Bacon of Guildford and Mr. Parsons. This young man (aged 23) was much emaciated, and had complained for some months of pain and stiffness about the upper and back part of the neck, the uneasiness differing from the ordinary sensation of a stiff neck, in being confined to the deeper structures: he had when I saw him the power of supporting his head without his hands, and of partial motion of the head backwards and forwards; but the lateral movement of the atlas on the dentata was very much limited, and pro-

ductive of pain. Connected with the disease appeared a pulsating tumour in the neck, on the right side just behind the angle of the jaw, bearing strongly the marks of an aneurismal swelling: the tumour projecting into the pharynx, and there being devoid of pulsation, was punctured under the suspicion of abscess; a quantity of pus flowed, which gave relief to his breathing, which had been impeded, and also to his pain.—The plan of treatment decided upon was that of an ordinary spine affection, care being especially directed to procure a favourable termination of the disease by ankylosis of the upper vertebræ.”

On the 16th of December Mr. Key received an account from Mr. Parsons, stating that the young man was much relieved by the discharge from his throat: but four days after it had collected in a much larger quantity; his sufferings were then very great, when it burst, and a great deal of very offensive green fluid came up, and it had not gathered since: he could swallow without much difficulty, excepting a soreness very low down in the œsophagus, and the external tumour had disappeared; his neck was rather awry on the opposite side, and there was a slight protrusion of the second vertebra sideways; he had more cough, and complained of much weakness and pain in his left side round the edge of the scapula, particularly on pressure; his appetite very good, and he got more sleep: pulse 82, various; bowels opened, but not always in a good state.

### CASE CXCVI.

#### *Disease of the upper Cervical Vertebra.*

“H. F——, aged about 18, came to town from Falmouth, where he had been residing, in consequence of general derangement of health, and great stiffness with swelling at the back of the neck. He had been troubled with the affection for six months previous to his visit to town, and the complaint being regarded as rheumatic, he had been recommended to live well and use exercise. In the autumn of the present year I saw him with Mr. Hooper, under whose care he had been placed: he was much emaciated, was unable to rise from the recumbent position without supporting his head with his hands, and in the very limited movement of the head complained of much pain; about the neck were several scrofulous sores, the result of suppurating glands. He lived for about two months after his coming to town, gradually wasting both in strength and flesh. On the morning of the day on which he died, Mr. Bevan perceived for the first time a slight tendency to paralysis in the upper extremities. At four o'clock in the afternoon, in the act of being raised from his pillow, he suddenly expired; probably from the anterior ligament of the processus dentatus at that moment giving way.”

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In these three cases, we remark the insidious approach of the disease; the pain and stiffness being often mistaken during many weeks for cold or rheumatism,—the gradual thickening of the surrounding soft parts,—the



confined or painful motion of the head, referred to deep-seated structures,—the occasional formation of abscesses and collections of pus,—the partial pressure, giving rise in the progress of the disease to symptoms of local nervous affection and partial paralysis,—and death at length taking place from exhaustion, or suddenly from displacement of the vertebræ.—The most favourable result in cases of this kind would of course be a subsidence of the inflammation without any organic change ; but next to that, we have most anxiously to turn our care to the production of ankylosis.

### CASE CXCVII.

*Paralytic affection of all the Extremities from disease in the upper Cervical Vertebra, and enlargement of the Processus dentatus.*

WILLIAM BROWN, aged 20, was admitted, under my care, into Guy's Hospital, August 18th, 1824. About six weeks before, without any cause of which he was aware, he began to feel pain in his neck close to the head, which had increased, with some stiffness of the part. At the time of his admission his head was bent forward, so that the chin approached the upper part of the sternum : there was almost complete hemiplegia on the right side, and some flying pain, which he called rheumatic. He complained of pain when the vertebræ of the neck were pressed, and there was an apparent displacement or slight irregularity in the spinous processes of that part. Leeches were applied and local applications made to the nape of the neck.

At first he was almost confined to bed ; but about the beginning of October he was becoming so well as to walk about the ward : still, however, his neck remained as before ; and although he walked, it was with obvious paralytic lameness, which soon began to increase much upon him. A seton was introduced into his neck, and he again improved ; but he relapsed, and in spite of various remedies the paralytic affection increased, and he became obviously weaker. In the latter end of November, the left leg was much affected, and always felt cold to the touch. In December he was still able to walk about, but became from day to day weaker and more helpless.

January 28th. He was much weaker, and was unable to walk without assistance ; complaining that his limbs felt asleep, but they retained their sensation : he had several cold chills on that day, which, as he had not unfrequently complained of the same feeling, excited no particular attention ; he also complained of a constriction at his chest, and a difficulty of breathing. On the night of the 29th he was attacked with erysipelas, after experiencing some chills : this affection quickly extended over his face and scalp.

February 7th. The erysipelas occupies the whole face ; he is perfectly sensible. Tongue white ; respiration very quick : pulse weak : he lies quite unable to move any part of his body ; he passes his fæces and urine in bed.

8th. Much disturbed; calls out constantly in a kind of delirium, yet he is quite rational in all his answers. Tongue moist at the edge, furred in the middle: respiration very frequent. He died in the night.

He never had, during the whole of his illness, the slightest pain in the head, nor the least feeling of numbness or other unusual sensation about the face, the tongue, or any part of the head.

#### SECTIO CADAVERIS.

No affection of the brain could be discovered. The spinal cord showed marks of congestion in one or two spots; but the appearance was so imperfectly marked as to be rather matter of doubt amongst those who saw it. The important part of the disease seemed confined to the processus dentatus of the second vertebra, which by its enlargement and displacement had contracted the foramen magnum very much (Plate XXXII. Fig. 1.); and at the point where pressure was made, the medullary matter of the spine had assumed a darker colour to the extent of about a pea, looking vascular.

In this case the seat of the disease was easily ascertained, from the local affection as well as from the extent of the paralysis; and it is to be remarked, that while motion was destroyed, sensation remained perfect: a fact which may be easily accounted for, when we consider that the processus dentatus was the part chiefly diseased, and necessarily made pressure on the anterior column of the spine.

#### CASE CXCVIII.

##### *Ulceration and Anchylosis of the Cervical Vertebrae.*

CHARLES DAVIS, a black man, was admitted into Guy's Hospital, October 12th, 1825. He had been a sailor and had enjoyed tolerable health: the only accident to which he could refer as at all likely to be connected with his present state, was, that about three years before, he had slipt three or four steps down into the cabin of a sloop, and in the fall ran a fork a very small depth into the back of the neck; the mark was scarcely to be perceived and appeared quite insignificant, nor did he feel any inconvenience at the time. About sixteen months before his admission he first felt pain in various parts of his body and limbs, like rheumatic pains, and frequently found great inability to move his arms and legs freely.

At the time of his admission he appeared to be exceedingly stiff in all parts; he walked with difficulty, and raised his arms very slowly and apparently with pain: he was perfectly unable to open his jaw, yet there seemed no paralysis of the muscles of his face, which he moved freely as he attempted to open his mouth, or as he spoke, or

expressed pain ; his head was immovable, or nearly so, somewhat inclined forwards, and when he attempted to turn it, the whole body moved round ; with assistance his head could be made to nod a little.

The remedies employed were principally local, as near to the occiput as possible, for it was evident that the chief disease lay in the articulations of the atlas and the processus dentatus. Cupping to a small extent at the back of the neck, blisters kept open, and setons, were used ; guaiacum in different forms, the balsam of Peru, the tepid bath, and gentle purgatives, were the more general remedies. Nothing however had the least effect. He was allowed as much nourishment as he could take, eggs and arrow-root and beef-tea ; and although there was scarcely enough room to show the smallest portion of the tip of the tongue between his teeth, still he contrived to take a good deal of soft nourishment, but he became from day to day more helpless and more emaciated. In the beginning of December he first had a little cough, which however subsided ; his inability to move became greater : he complained of pain in his shoulders and hips and loins when he attempted to move them, and a feeling of soreness in the muscles ; he had occasional cramps in the legs, but he had no loss of sensation, and his stools and urine were natural. When he attempted to rise in bed, it was with the greatest difficulty he got hold of the rope which hung before him, and when he was helped out to the side of his bed and got into an erect posture, he was some time before he could poise himself, and then his toes were turned in, and he could not raise his feet, but assisted himself a little in moving by making a progressive motion between the toe and heel of the foot. The disease wanted some of the characters of paralysis ; it was like the stiffness of chronic rheumatism without any of the swelling.

In the beginning of March he complained of some pain in the chest, and cough ; his pulse was quick and feeble, and his respiration hurried. He gradually became more feeble, and at last died, rather suddenly, on the night of the 22nd.

#### SECTIO CADAVERIS.

The right lung adhered slightly to the pleura from recent inflammation. No effusion into either cavity of the thorax. Right lung with less than the natural crepitus : on being cut into, a great quantity of serum, somewhat frothy, but quite watery, ran out in streams. The lower lobe broke easily under pressure, and then was soft and watery ; in many parts of this lung, tubercles were felt, almost like shot ; and on cutting upon them, they were yellow, cheesy, generally solitary, or in small clusters, without any surrounding blue transparent tubercular deposit. These occurred as much in the lower as the upper lobe, and were in several parts near the surface, though in some they were deep in the substance : none of them were in a state of suppuration, but some were soft ; few were larger than peas. The left

lung more natural, with no adhesion, and no effusion of serum, but a few of the same tubercular deposits. Bronchial glands hard and acquiring a tubercular appearance and structure. Heart healthy. Liver rather pale-coloured; in general the abdominal viscera were pretty healthy. Skull thick and heavy in a remarkable degree. Arachnoid thickened and slightly opaque; a small quantity of serum effused under this membrane; convolutions very evident and raised; whole brain firm and rather exsanguine. The atlas was diseased in all its articulations, both with the occipital bone and with the dentata; and the processus dentatus was likewise diseased,—so that all the surfaces were ulcerated and scabrous. The processus dentatus had moved a little out of its place, from a partial destruction of its ligamentous bindings, so as possibly to have occasioned slight pressure on the spinal column. The scabrous surfaces appeared to be sending out bony points, as if to form anchyloses, and seemed to fit into each other. The rest of the cervical vertebræ were in a state of ankylosis. The lower jaw was firmly anchylosed to the upper jaw at both its articulations.

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This case is somewhat imperfect, as, from one of those oversights which we have so often to regret, in the interest of what was discovered during the investigation, we neglected to examine the condition of the other articulating surfaces of the body. I have scarcely a doubt that we should have found other superabundant bony deposits about the spine; and, from the peculiar and marked way in which the toes were turned inwards, there is every probability that some change had been taking place in the acetabulum, or the head of the thigh bone.

Throughout the progress of the complaint there had been no distinct paralysis: there was loss of motion, but not the least loss of sensation; and the difficulty of motion was much more like that which arises from the stiffness communicated by long rheumatic ailments, producing slow changes on the structure of ligamentous parts, than that which depends on paralysis. The circumstance of perfect inability to open the jaw, at first seemed very inexplicable and not easily connected with injury in the neck; in a short time, however, it was very plain that some mechanical impediment existed, for though all the force which could prudently be employed was exerted in vain to move the jaw in the slightest degree, it was remarkable that the muscles of the part were perfectly passive and apparently insensible of the efforts which were made.

The appearances observed in the articulating surfaces of the vertebræ show the gradual progress of this disease, as it approaches towards the only cure of which it is susceptible, after ulceration has taken place. The ankylosis in the lower vertebræ of the neck was perfect, and it is not improbable that it was only owing to the frequent motion to which the upper vertebræ are necessarily exposed, that the bony union had not already secured the atlas to the dentata; and it is likewise more than probable that the suddenness of the death at last, was owing to pressure made on the spinal column, by the processus dentatus being partially dislocated from its ligaments.

#### VII. PRESSURE ON THE SPINAL CORD FROM ACCIDENTS.

The three cases which follow, will serve to give a general idea of the symptoms and appearances, resulting from a class of accidents, of which numerous instances might be collected from the practice of a large hospital, but which fall so exclusively under the care of the Surgeon as to come but casually within the sphere of my particular observation.

#### CASE CXCIX.

*Displacement of the First Dorsal Vertebra; Formation of Bullæ on the paralyzed Limb; Inflammation of the Bladder.*

A. B. was admitted into Accident Ward, October 2nd, 1827, having fallen from a ladder backwards, with a mason's hod upon his shoulder, and injured his spine. No displacement of the vertebræ was to be observed, but he had entirely lost the use of his lower extremities, and all sensation from the ensiform cartilage down, and so in a line nearly to the axillæ; he breathed in jerks, chiefly by the diaphragm; he could swallow well.

3rd. Two or three large bullæ, of the size of sparrow's eggs or larger, full of clear yellowish serum, have appeared on the ankles and feet, chiefly the right, and where any particular pressure has occurred. (See wax model in Guy's Museum.)

5th. He breathes with much less of jerk and difficulty, and the sensation has returned to a considerable degree, some inches lower on the body than it was before; in other respects little change: the bullæ which first came out continue, and have rather increased in size; they are quite tense, full and transparent, and so strong as to allow of being freely touched; they are warmer to the feel than natural; the surrounding parts of the foot are also hot, and immediately around the bullæ there is a slight red blush.

Oct. 11th. He has derived no further relief, but is suffering very greatly from irritation : the pulse quick and various : tongue furred and dry. The right foot remains much as it was ; the larger bulla is nearly the size of a hen's egg ; a great part of it is still transparent, and the fluid it contains yellow ; an air-bubble is seen floating in it, and to the bottom and side a subsidence of yellow pus, quite opaque, has taken place. One of the bullæ has burst and fallen in.

From day to day he grew more feeble, and in a short time sloughing began to occur on the nates : he gradually sunk, and died exhausted October 22nd.

#### SECTIO CADAVERIS.

This took place within eight or ten hours after death. The most extensive decomposition had gone on, before death, on the nates, so that holes, not less than an inch deep, were seen in each side, and on the left the whole extent of the buttock was absolutely putrid, having all the appearance of the most advanced decomposition : nearly the same appearance extended all across the loins, considerably above the sacrum. It was found that the injury had been inflicted at the first dorsal vertebra, or thereabout, and a most complete depression of the upper portion had taken place ; the spinal theca was entire, but the substance of the cord was completely pressed out, so that there did not appear to be the least remains ; the superior portion was vascular ; the inferior portion seemed to have gone into a state of softening for the extent of a couple of inches, and on one side was yellow and appeared to be suppurating. The theca, below the injury, contained more fluid than natural. The left lung showed marks of inflammation. The bladder was diseased, about one fourth of its extent, at that part which lies towards the back and to which the urine would gravitate as the patient lay upon his back, showing a morbid condition of the mucous membrane ; it was thickened, spongy, of a gray green colour, had lost its lustre, and appeared in a state of superficial slough. The other parts were vascular.

#### CASE CC. & CCI.

##### *Injury to the Dorsal Vertebrae from Accident ; Formation of Bullæ ; Ulceration of Bladder.*

IN the month of August 1827, two patients died, nearly about the same time, with paraplegia ;—the one from a cart going over his back and displacing some of the dorsal vertebrae, which were reduced ; he lived about three weeks :—the other from a chronic disease of a fungoid nature, brought on in the spine by the circumstance of carrying



too great a load on the head, which after death appeared actually to have crushed the body of one vertebra, and around the part fungoid disease had been established.

Both these patients died from the irritation of ulcerated bladder. In the former, sinuses were formed by ulceration into the cellular tissue surrounding the bladder; and two days after the accident, several bullæ arose on the feet and on the part of the inside of the knees where pressure took place: these made a very slow progress, continuing almost unaltered for nearly a fortnight; they then dried away, being apparently first ruptured.

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The two most remarkable points to be incidentally noticed in the foregoing cases are, first, the diseased state of the bladder, resulting from its diminished power to resist injury, and from the changes taking place in the condition of the urine, detained in its most depending part, which becomes one of the most frequent causes of fatal irritation in paraplegia;—and, secondly, we observe the occurrence of bullæ on the paralyzed limbs, to which circumstance I have already referred in some remarks made at page 383; the general inability to resist injury is likewise marked by the extensive sloughing of all the paralyzed parts on which pressure is made.

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Cases of still more partial paralysis occasionally arise from morbid growth, as tumour, or aneurism pressing on particular nerves; or from accidents producing pressure, of which I lately had an example in a badly united fracture of the humerus, giving rise to complete paralysis of the fore-arm and hand: but the instance of partial paralysis which is most familiar to the physician, is the loss of power in the muscles of one side of the face, arising generally from exposure to cold. This is an affection of the *portio dura*, and I have seen it connected with, and apparently depending upon, inflammation and induration of the parotid gland, and also, which is more frequent, I have known it to exist without any marked affection of the parotid, and probably from inflammatory disease of the covering of the nerve. In many instances attacks of this kind yield to leeches, antiphlogistic remedies, and blisters. In a few they are less controuled by medicine, but in a great majority of cases are so completely local as to be a source of much less anxiety than almost any other paralytic symptom.

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## VIII. CHRONIC HYDROCEPHALUS.

The facts connected with that distressing disease, which is the subject of the present short section, are easily stated, as they are but too generally known. From some cause, of which we are ignorant, it not unfrequently happens that at the time the foetus is arrived at the period when it should be expelled from the uterus, and even long before that period, a morbid and often a most excessive accumulation of watery fluid takes place within the ventricles of the brain: this sometimes goes to an extent which prevents the possibility of the birth of the child, and it becomes necessary to draw off the water before the head can pass from the pelvis. At other times the child is born with the head not at all, or very slightly, disproportioned to the body; but in a few days or weeks, perhaps not till a few months have passed, it is perceived to increase beyond the usual ratio: it becomes deformed; the two frontal bones, instead of falling gently backward from the eyebrows, generally assume a perpendicular or even a projecting position; the two parietal bones open from each other and fall towards the neck: thus the head becomes distorted, and the sutures so separated, that a space of two or three inches often intervenes between the bones. Sometimes at birth, and sometimes within a few weeks after, the sight is lost, though the hearing generally remains acute; and, as the months pass on, instead of the intellect gradually unfolding itself, the mind is almost stationary; and often the powers of the body are paralyzed. In other cases, tolerable health is maintained, and the intellects are in their ordinary state of development, and very little paralysis is experienced, although the enormous weight of the head is such as to render it impossible for the child to walk or balance itself. The process of ossification in the skull goes on irregularly, so that we often find small patches of membrane left unchanged in different parts; and it proceeds with various degrees of rapidity; sometimes—although the extent of bone to be formed is so much greater than natural—the sutures are closed by the fourth or fifth year; at other times the process is not complete till much later, and is often assisted by the formation of bone from additional centres of ossification, so that small bones are to be felt lying separate in the wide spaces of the sutures, which after a time meet together, forming numerous ossa triquetra. At length the process is completed; and if the tendency to the accumulation of fluid is not previously checked, we usually find the symptoms, both bodily and mental,

increasing rapidly about this period. The child becomes the subject of frequent convulsions, is paralyzed, and loses part, or the whole, of that limited share of intelligence which it possessed. It is possible that a short respite may be given to such a result by the opening of the closed sutures: and a case has been recorded by Dr. Baillie, in the 4th volume of the Transactions of the College of Physicians, of a boy of seven years of age, the sutures of whose head had completely closed, but during the last four or five months of his life, separated to a distance of three quarters of an inch from each other, in consequence of the accumulation of nearly a pint of fluid in the ventricles: this child, however, at length died convulsed and paralytic; and as a proof of the powerful pressure sometimes produced by the effused fluid, we have a very curious case related by Dr. Baron in the 8th volume of the Medico-Chirurgical Transactions, in which the brain and its membranes, after being so attenuated as not to be thicker than a shilling, actually gave way, and the fluid escaped by an opening in the anterior fontanelle, forming a tumour which burst externally with temporary relief to the symptoms. When the tendency to accumulation has ceased before the closing of the sutures, we occasionally find persons who have been to a moderate degree affected with this malady, living in a comfortable state for many years, and though, in general, persons of weak or imperfect intellect, still able to perform many of the duties of life, enjoying a fair share of health, and dying at length of other diseases.

In the treatment of this disease, various remedies have been tried, more particularly all those which have been found beneficial, or supposed to be so, in dropsical cases; but they have all, with a few exceptions, proved unavailing, except as they have been calculated to improve the general constitutional strength.

Amongst the few recorded cases in which remedies have been successful, there is one related by Dr. Traill of Liverpool, in the first volume of Dr. Monro's "*Morbid Anatomy of the Brain*," where a cure was effected in a child of eighteen months, whose head is stated to have been of enormous size, with distended sutures; and in whom strabismus, frequent convulsive twitchings, and an approach to coma, were present. Dr. Traill and Mr. Reay agreed to rub the mercurial liniment upon the head daily, and to purge the bowels briskly with calomel, conjoined with other cathartics. These means were persevered in for a month, and it does not appear that any other remedy was employed; but at the end of ten months the child

was seen in perfect health of mind and body, though the head continued rather large.

One question which arises with regard to treatment is, the propriety of removing the fluid from the brain by puncture.—Hopeless as this appears, it is in general almost the only chance remaining ; and the alternative being to suffer mental and bodily imbecility for the whole of life, or to risk a more speedy death in the hope of relief, it is plain to which side our duty and inclination would prompt us, if but a reasonable prospect of success could be established. The probability of success in this operation is, however, very limited, and must depend in a great degree upon the state of the brain, which can only be inferred from the examination of those who have died ; in whom unfortunately, the results have often evinced such extensive derangement and even destruction of the organ, as to show that no good could have been expected from the operation. In the majority of cases the fluid has been situated in the ventricles ; and as it has accumulated, the brain has been gradually pressed aside and unfolded till it has formed a thin cyst around the fluid, like a lining to the *dura mater*. In other cases, the distention has been less, but the whole cerebral mass has been so soft as scarcely to admit of being the subject of demonstration. In other cases, again, the fluid has been chiefly external to the *pia mater* and *arachnoid* ; and then the brain has been described as forming a small mass behind the optic nerves, scarcely to be recognized. In other cases, however, the mischief has been less, consisting only of a moderate state of distention in the cavities, and consequently holding out a fairer prospect of recovering itself after the fluid has been removed.

From the experiments which have been made, it is completely proved that the operation may frequently be performed without fatal consequences, and that it may be repeated several times without producing death.

The first case in which this operation was performed, to the record of which I can immediately refer, is to be found in the 6th volume of the *Medical Communications*, where an account is given of its being performed in the year 1778 by Dr. Remmett of Plymouth, on a child two months old. In the course of two months the head was punctured with a lancet five times, and no less than eighty ounces of fluid drawn off. Seventeen days after the last operation the child died, and the whole cavity of the cranium was found full of a pellucid fluid, of which above two quarts were collected. This fluid seemed to be external to the brain, and immediately

under the dura mater, which with its processes was entire; and after the most minute examination, nothing could be traced but the medulla oblongata descending into the spine, and behind the orbits of the eyes a very small quantity of a medullary substance indistinctly resembling brain, but quite entire, and covered with the pia mater.

In the year 1817 a case occurred to Dr. Vose of Liverpool, in which he punctured a hydrocephalic head four times, and drew off thirty-two ounces of fluid, with great relief to the patient, who several months afterwards, at the time the case is recorded, was doing perfectly well: but we unfortunately find it stated by Dr. Traill, in Dr. Monro's work, that the child died of the disease some time after. Subsequently to this, Mr. Calaway of Guy's Hospital performed the operation, but with only partial success; the fluid accumulating again rapidly after each puncture, and the children sinking under excessive exhaustion and emaciation. Within the last two years Dr. Conquest has performed it on three or four hydrocephalic children, and with such favourable results as to give him sanguine hopes of its ultimately proving a most valuable operation. In a case operated upon last year, not the slightest return of the disease has appeared, and the child is stated to be in perfect health. And the last case he has publicly mentioned, is in the Medical Gazette for November 6th of this year (1830), in which at the first operation twelve ounces were taken away, and at the second, eighteen ounces. The child is stated to be apparently well, the bones having nearly closed, and the patient free from any evidence of disease, although before the operation it had fits almost incessantly.

Soon after Dr. Conquest's cases were brought before the public, one was stated in the Medical Gazette, where the operation, having failed in the hands of some other practitioners, gave an opportunity of examining the state of the brain, which was so completely softened down as to suggest the idea that the operation could not well have succeeded. However, I am inclined to believe that this softened condition of the brain might have been the result of some recent slow inflammatory action; and, at all events, the apparent success which has attended one or two cases, holds out a slight encouragement to a more extensive trial of this most doubtful remedy. There is no doubt that many cases will fail; for in some the tendency to pour out fluid continues unabated, and between each successive operation the head rapidly increases: but if, fortunately, as sometimes in the operation of paracentesis of the abdomen, the tendency to accumulation should

have ceased, either from the effects of remedies, or from some local change depending on the abstraction of the fluid, and if the cerebral disorganization should not be totally irreparable, a cure may be effected: still, however, it remains to be proved to what extent such cures will be satisfactory as to the future mental condition of the child; and probably a very small proportion will even apparently succeed.

I shall now proceed to state two or three cases, which will be sufficient to convey a general idea of the disease, though a great number will be found on record in different medical publications.

## CASE CCII.

### *Hydrocephalus at the Time of Birth.*

IN the Museum of Guy's Hospital we have a dried preparation of a child at the period of birth the subject of hydrocephalus and spina bifida, two diseases which are very frequently associated with each other. The ossification of the skull is very imperfect, having taken place irregularly, so as to leave in several parts insulated patches of membrane; and altogether the ossified portions do not constitute more than one-third of the whole parietes. This preparation was presented by Mr. Hargraves of Tunbridge Wells, who was kind enough to send me the following short account of the circumstances attending the birth.

“DEAR SIR,

Tunbridge Wells, 29th March, 1829.

“The subject of the preparation died in utero. The woman who bore it had been in labour under the care of a midwife three days, when I was called: her pains had become excessively violent; a small portion of the scalp was protruding at the os externum, which from its flexibility I supposed to be the investing membranes; but carrying the examination further, above the pubis I found a naked ear, and my hand readily passed through an aperture in the anterior part of the uterus, commencing about two inches and a half or three inches from the edge of the os uteri, and extending directly upwards in length about four inches, but not communicating with the cavity of the abdomen, the rupture being through that portion of the uterus in contact with the bladder. My only course was evident; I immediately punctured the head, and discharged from it three or four pints of fluid; after which the delivery was effected in a few seconds, with little other aid than the expulsive efforts of the uterus: the foetus appeared to have been dead twelve or fourteen hours, was very perfect in all its parts, save the back and head, and was unusually large in all its proportions. The mother of it stated, that its motion had been very indistinct, and unlike that of her other children; so much so, that at times she had almost doubted her pregnancy (she



perfectly recovered). The organization of the fœtus on dissection appeared perfect, and the viscera healthy; there was a plentiful secretion of meconium, and it had all the appearance of having been a healthy fœtus, excepting in the two points before mentioned: a good deal of the fluid was exterior to the cranium; the scalp was separated from the head to a great extent,—this might have occurred during labour, but I think did not, as the quantity of fluid I conceive was too great ever to have been contained wholly within the cranium;—the puncture I made was *only* through the *scalp*, all the fluid readily escaped by it: the head contained a full quantity of brain of the usual texture.

“DR. BRIGHT.

ISAAC HARGRAVES.”

This case presents an example of a circumstance of comparatively frequent occurrence,—the extensive existence of the disease before birth, and the defective formation of the vertebræ in such cases. It may fairly be a question where the serum was chiefly collected: some of it was probably external to the skull, and not improbably that which escaped from within was rather beneath the membranes than in the ventricles. In the Museum of Guy's (No. 1000) is preserved a fœtus, probably within the first month of its existence, the subject of spina bifida, and apparently hydrocephalic accumulation. And in Dr. Blundell's Museum is an instance of a much larger fœtal head than the one of which I have just spoken.

### CASE CCIH.

#### *Chronic Hydrocephalus from Birth.*

JULY 31st, 1829, I had an opportunity of seeing Elizabeth Phillips, aged ten months, the subject of chronic hydrocephalus. She lay in her mother's arms, and lived entirely on the breast. The circumference of the head at that time was twenty-eight inches and seven-tenths; it measured from the root of the nose to the nape of the neck twenty inches and a half; and from the upper insertion of the ear to the corresponding part on the opposite side, thirteen inches and three-tenths. The veins of the head were much distended, and the eyes were deeply sunk in their orbits and turned downwards. She appeared to know her parents perfectly, and to have quite as much intelligence as children usually have at her age; she was cheerful; her limbs were well nourished, and she seemed to have the perfect use of them. She had never been convulsed, but sometimes during the night a choking came on, which soon subsided on being raised. The bowels were generally open, sometimes much relaxed: urine copious, and with a strong odour; appetite greedy; thirst considerable; tongue white and coated.

The mother stated that she went to the full period of pregnancy, and after being in

labour three days, was delivered without the use of instruments. The child's head when born was much swollen and ecchymosed; in a few days it assumed its natural colour, but still continued swollen, and from that time it rapidly increased to the third month, when it measured twenty-six inches in circumference, and sixteen inches from the bottom of one ear to the other over the vertex. Since that time the increase has been much less rapid, as the present measurement shows. The principal change which has latterly been observed, is the increase in the size of the bones, the process of ossification gradually contracting the soft spaces of the sutures, though they were all still very wide when I saw it, and the continuation of the sagittal suture was to be traced quite open to the root of the nose.

#### CASE CCIV.

*Chronic Hydrocephalus coming on three months after Birth; with Paralysis of the left Side.*

ELIZA CLARKE, aged 6 years, for the first three months was healthy, and nothing remarkable was perceived about the head: she then had a severe illness, attended with constant sickness of stomach, during which blood was taken from the head, and she was considered very ill for several weeks; it was at this time that the head was observed to be of a remarkable size, and it enlarged very much for about six months, during which time the chief growth took place; nor does the mother think that the head has increased at all latterly. At the time I last saw the child, (which was December 4th, 1830,) the head was twenty-six inches and a half in circumference, and sixteen inches and a half from the upper part of the insertion of one ear to the same point on the opposite side, and twenty inches from the poll to the insertion of the nose. There was still a space of two or three inches square at the anterior fontanelle, in which ossification was deficient; in all other parts the sutures seemed to have closed; and as far as I could judge, (having lost my former measures,) the head had probably not increased at all since I saw the child nearly a year before.

For three years after the disease first appeared the child was always in a recumbent posture, unable to support its head; but for the last three years she has sat erect during the day, and seems to find no difficulty in moving the head almost like another child; she is very cheerful, and generally good-tempered, amusing herself with pictures or pieces of paper; she answers questions quite sensibly, but still there is an evident imbecility in her manner, and it is said that she occasionally talks incoherently: when given some money she knew the number of the pieces, but not their value; and when asked what she would buy with it, gave an intelligent answer. She enjoys remarkably good health, but has for some years been paralytic in the arm and leg of the left side; and is not able to read, from the difficulty she experiences in looking downwards, for her eyes are turned up, owing to the deformity of the sockets. She is very small for her age, and has grown but little during the last year.

## CASE CCV.

*Chronic Hydrocephalus from Childhood, in an Adult; Ossification complete; Intellect moderate.*

JAMES CARDINAL, aged 29, was admitted into Guy's Hospital, under the care of Sir Astley Cooper, December 1st, 1824. He was the subject of chronic hydrocephalus in a very marked degree, and had lately been in St. Thomas's Hospital for several months, under the care of Mr. Green; his case, however, admitting of little medical and no surgical aid, he had been dismissed.

His general appearance was very remarkable, from the extraordinary disproportion between his head and the other parts of his body; for he was well-formed, and nearly of the middle stature, but his head was at least twice the size which his spare body would lead us to expect. (Plate XXXIII.) His countenance was not wanting in intelligence, though his forehead was very prominent, and there was a peculiar lengthened appearance in his eyes. On inquiring from his mother more particularly into his history, it was collected that he was born at Coggeshall in Essex, March 2nd, 1795, and that his head was then very little larger than natural, and had a pulpy feel, being apparently almost destitute of bony matter. A fortnight after birth the head began to increase considerably, and by the end of the first month bone was obviously formed. The growth of the head proceeded with great rapidity till he was five years old, at which time the mother is of opinion that it was little less than at present. When he was about three years old, he bled at the nose in small quantities for several weeks at intervals of a few days. He was unable to walk alone till he was nearly six years old, and then only on a level surface: if he attempted to run or stoop, he fell down, and upon one occasion about that period he lacerated his forehead by a fall; there was some little bleeding from the wound, and he was laid up for a week or two. At this time (when about six) he was sent to school, and soon learnt to read well, and write tolerably; the writing, however, was discontinued in consequence of the pain it produced in his head, which, from being near-sighted, he was obliged to hold very low. When a child, his health was very good; and up to four or five years ago his appetite was ravenous: he was always very weak, and used to shake as he walked along. If a candle was held behind his head, or the sun happened to be behind it, the cranium appeared semitransparent; and this was more or less evident till he attained his fourteenth year. Fits of an epileptic character came on at about the age of twenty-three, and since that his health has rather suffered. The bones have been closed about two years; the anterior fontanelle being last ossified. Since their closure he has had shooting pain in the vertex. In the summer of 1823 an abscess formed in his ear, which discharged for some time, and relieved his head greatly.

At the time of his admission he appeared in tolerable health, except a slight cold,

and the circumstance of his being liable to fits, which occurred at very irregular intervals, half a year sometimes intervening; while at other times, three or four would happen in a month: the last attacks had been in June, when they returned on two successive days. These fits came on without the slightest warning, and sometimes during sleep: they generally lasted about twenty minutes or half an hour, and were attended by foaming at the mouth, and followed by a disposition to sleep. Although he walked about quite erect, he was not altogether firm on his feet, but sometimes tottered a little and required support, and on stooping, giddiness was produced, so that he sometimes overbalanced himself. He was near-sighted, but heard with remarkable acuteness; his taste was perfect and his digestion good. His mental faculties were very fair: he read and wrote pretty well, but if he read long his eyes were apt to be weak and inflamed: his memory was tolerable, but it did not retain dates and periods of time; and it was stated of him that he was never known to dream. There was something childish and irritable in his manner, and he was easily provoked. He was stated not to have sexual desires, but he was fond of society, and affectionate to his mother. His voice was not manly, but feeble and somewhat hoarse: his bowels generally costive, his head ached occasionally; and if he moved it suddenly or violently, he used to complain of a sharp pain as if a penknife were entering his brain. He always lay on his left side, and was unable to lie on the right. He remained pretty well for a few weeks after his admission into Guy's Hospital, when he appeared to have renewed his cold; and febrile symptoms coming on, he lost his appetite entirely, had some diarrhoea, became exceedingly feeble, and died on the 24th of February 1825.

#### SECTIO CADAVERIS.

On dissecting back the scalp and raising the calvaria, it was found that the whole of the upper part of the cranium had been filled with a clear transparent fluid contained only within the dura mater, and that the brain itself occupied the base of the cranium; the parts being so displaced that it was no easy matter to recognize all their bearings. It soon, however, became obvious, that what we saw looking like the flattened superior surfaces of the two hemispheres, was in fact the two lateral surfaces, which in health are opposed to each other through the centre of the brain; these had been separated and thrown back by the pressure of the fluid which, having first accumulated in the lateral ventricles, had forced a preternatural opening on one side of the corpus callosum, which, together with the whole fornix, had been nearly obliterated; and as the fluid increased, the hemispheres were gradually brought down to the base of the skull. The right hemisphere was quite flat, but the left was raised into a

point at the side of the skull. About one pint of fluid was found in the ventricles, and probably, six or seven pints externally; for when the skull was completely freed from its contents, both solid and fluid, it would hold ten pints of water. The ventricles were so much disfigured by the fluid within, as well as by the peculiar position the brain had assumed, that it was with difficulty the various parts were discovered; to add to which difficulty,—as it was thought advisable to procure drawings of the appearances,—two or three days elapsed before we could pursue the dissection more particularly, and then many of the finer parts were rendered indistinct by exposure. The cerebellum was flattened and vascular.

The accompanying engraving (Plate XXXIV.) gives a very faithful representation of the recent appearance of the brain when the water was taken away; and the skull itself being preserved in the Museum of Guy's Hospital, together with the whole skeleton, I have availed myself of the opportunity of having lithographic drawings executed from it, one of which shows in a very remarkable manner the process which nature had adopted in closing up the unusual spaces between the regular bones of the cranium by the intervention of numerous ossa triquetra. (Plates XXXV. XXXVI. and XXXVII.)

On carefully taking the different measurements of the skull, it was found that its circumference at the part through which it was divided, and which was as nearly as possible its largest diameter, was thirty-two inches and a quarter. The distance from the articulation of the jaw on one side, to the corresponding point on the other, measured over the vertex, was twenty-one inches: from the insertion of the ossa nasi into the frontal bone, to the posterior margin of the foramen magnum, twenty-three inches and three-eighths. The long diameter from the projection of the os frontis to the projection of the os occipitis, where the skull was divided, was ten inches and a half, including the thickness of the skull; and one inch to the right of that line, was eleven inches: the transverse diameter, measured across the foramen magnum, was nine inches.

The ossification of the skull might be considered complete; but at the anterior parts of what formed the anterior fontanelle there was a small space where the bone was very thin, and even deficient, to an extent which would admit three or four pins' heads. The skull was very thin, except in a few places of small extent, as at the ridge of the os occipitis, and a ridge running along the inside of the left parietal bone. In the thicker parts

more particularly, the bone on the inside had a spongy or worm-eaten appearance, and numerous small vessels seemed to have been imbedded in it. Between the chief bones there were numerous ossa triquetra of various sizes and forms, united together by well-formed sutures; of these there were not fewer than forty-five along the lambdoidal and sagittal sutures, and ten between the os frontis and the parietal bones; and there were some, badly defined, on the squamous suture of the temporal bones. The frontal suture was not perfectly obliterated.

This case is very remarkable for the length of time to which life was protracted, and still more for the degree of intelligence which was manifest in spite of the large accumulation of fluid; and also for the state of bodily health which was enjoyed. It is not improbable that much of this immunity from mental and corporal ailment depended on the situation which the fluid occupied; for after moderately distending the ventricles, it ceased to act in that way, having gradually opened for itself a passage by the side of the corpus callosum, and thus the further effusion found its way externally to the brain. The mass of cerebral matter was scarcely diminished, and it appears probable that the effusion had not increased from an early period.

The skull in this case illustrates very beautifully, the mode in which the unnaturally wide spaces between the bones become ossified, by the formation of numerous ossa triquetra. This process is often to be traced in its earlier stages, both on the living subject and in preparations. There is, in the collection of Dr. Blundell, the head of a child which shows this circumstance very well. The history of the child is not known; but it had cut four incisor teeth in the upper and two in the lower jaw, and probably, therefore, had lived for some months. The head is twenty-four inches in circumference, and nineteen inches from the posterior margin of the foramen magnum to the insertion of the nose: by far the greater part is a mere membranous bag; and the orbital plates of the frontal bone, in which no vestige of bone can be traced, seem to have been pressed down by the weight of the contents of the head, encroaching greatly on the sockets of the eyes. The process of ossification however, though little advanced, is going on from many different points; and on tracing the wide membranous spaces of the sagittal, lambdoidal, and squamous sutures, but more particularly the lambdoidal, at least twenty small subsidiary bones are to be distinctly seen extending themselves to complete



the bony skull,—of which, through the kindness of Dr. Blundell, a sketch will be seen in Plate XXXII. Fig. 2.

The four cases of chronic hydrocephalus which I have just detailed serve to trace the disease through the greater part of its phenomena. The accumulation of fluid beginning previous to birth in the first and second; not perceived till a fortnight after birth in the fourth; and not till three months in the third, when it seemed to depend on some inflammatory action in the head. We trace likewise the gradual progress of ossification from the membranous bag with a few small plates of bone in the first case; to the firm bony skull of Cardinal in the last, in whom ossification does not seem to have been completed till after he was at least twenty years of age. Great varieties are observed, however, both in the time when accumulation of fluid begins to take place; its rapidity of formation; the intermissions which occur in the effusion; and the time occupied in the completion of the bony skull; so that every case may be said to present a different history with regard to these particulars. In some cases there appears to be a tendency to deposit more bony matter than is needed, and the skull becomes inordinately thickened, and deposits take place on the dura mater also, of which a very marked case occurred at Guy's, from which the skull, thickened, with its sutures nearly obliterated, is preserved in Guy's Museum (No. 1065.), and the dura mater singularly and extensively ossified. (Plate XXXI. Fig. 2.) In this case the man had lived in the tolerable possession of the powers of mind and body considerably past the middle age, but the collection of fluid was by no means so large as in many other cases.

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#### IX. SPINA BIFIDA.

I have already incidentally mentioned the fact, that spina bifida often accompanies chronic hydrocephalus. The deficiency in the bony structure of the spinous processes of the vertebræ is generally attended in this disease by an unnatural accumulation of fluid, which forms a bag at the defective part of the spine wherever it may be. Mr. Abernethy threw out the idea that it might be justifiable to draw off the fluid by puncturing the bag; and Sir Astley Cooper published some very valuable observations

on the subject, in the 2nd volume of the Medico-Chirurgical Transactions, accompanied by three cases in which this plan was adopted, and in all of which favourable results were produced: in one a perfect cure was accomplished by the adhesive process taking place in the sac and obliterating the opening into the spine.—Sir Astley Cooper used a fine needle for the operation, and repeated it several times; but he does not consider the method of puncture to be applicable when the spina bifida is connected with chronic hydrocephalus, or when the deficiency in the spinous processes is very extensive, or when considerable paralysis of the lower extremities exists. In these cases cautious pressure and support by bandages seem to give protection to the part, and in some degree to prevent the accumulation of the fluid.

It has been proposed, and even attempted, to pass a ligature round the sac, with a view to its removal and the obliteration of its opening into the spine; and a preparation was sent to the Museum of Guy's Hospital, where it is preserved, showing an instance of the fatal effects of this operation: the truth is, that not unfrequently large nerves proceed from the spine in such a direction as to run round the sac, of which a very well-shown specimen is preserved in the Museum of Guy's Hospital (Plate XXXII. Fig. 3.); and there is another in the collection of Dr. Blundell at Guy's Hospital, in which the spinal cord itself seems to be attached to the parietes of the tumour; and distributions of this kind, which are by no means uncommon, would of course render the operation highly dangerous, and most likely fatal.

Sometimes the deficiency in the spinous processes takes place in more than one part, and the fluid communicates along the spine from one to the other: and in Dr. Blundell's collection there is a child, in which the whole of the spinous processes and bodies of the vertebræ are wanting, and the nerves are seen drawn out in long filaments by the distention of the membranes. With regard to the situation which this fluid occupies, I believe it is within the dura-matral covering of the spine, and perhaps between two layers of arachnoid; at least I am informed by an eminent pathologist that the arachnoid lines the sac; but as I have never had an opportunity of examining a recent case, I cannot speak from my own knowledge, nor can I positively say, where the fluid in the head is situated, when spina bifida and hydrocephalus occur together.

X. *CONGENITAL HERNIA CEREBRI.*

An affection very closely allied to that I have just mentioned, is the congenital hernia cerebri, in which there is a deficiency in some part of the bony parietes of the skull, attended with the protrusion of a portion of the brain and its membranes.—The tumour thus formed is generally found to contain within its cavity a fluid, and communicates immediately with the lateral ventricles.—In the Museum of Guy's we have some very illustrative preparations, and a cast of this disease from a child of nearly two years of age, where a portion of the brain and its membranes had protruded through an opening in the skull, formed by a deficiency in a considerable part of the right and a part of the left parietal bones: and in this case, one of the lateral ventricles, in which was an indurated portion of the choroid plexus, had extended into the tumour. Mr. Henry Earle removed the fluid in hernia cerebri by the same means as Sir Astley Cooper had adopted in spina bifida;—but the result, of which an account may be found in the 7th volume of the *Medico-Chirurgical Transactions*, was not satisfactory: indeed the operation seems little else than the operation in chronic hydrocephalus, performed under the additional disadvantages of greater derangement in the natural structure and situation of parts.

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XI. *SEROUS CYSTS IN THE ARACHNOID.*

There is a species of partial accumulation of fluid in the brain, which must not be passed over without notice: I mean, serous cysts forming in connection with the arachnoid, and apparently lying between its layers, or attached by thin adventitious membranes. These are occasionally discovered on dissection; and have either produced no symptoms, or have been quite unsuspected till after death. These cysts vary from the size of a pea to that of a large orange, and may be considerably larger. They appear to be of the most chronic character, and probably never enlarge after their first formation. The brain is completely impressed by them, so that when the fluid is let out, a permanent cavity remains, and even the bone of the skull is moulded to their form. I have given the representation of these cysts, as they occurred in two cases, in Plate XXI. Fig. 4. and Plate II. Fig. 1.

In the former there were two cysts, both very small, formed on the upper part of the hemispheres near to their internal edges: the one which is represented (Plate XXI. Fig. 4.) was the smaller of the two, and the depression formed in the bone by both is seen in the same Plate, Fig. 5. The arachnoid covering them was thick and opaque, and from the depression in the bone, there can be no doubt they had existed in their present size and form for a great length of time.

The other case, from which a figure has been taken (Plate II. Fig. 1.), occurred to Dr. Tweedie in a fever patient, in whom there was no suspicion of any remarkable disease in the head beyond the usual results of fever: and in the note below, the case will be found, as published by Dr. Tweedie, who obligingly allowed me to have a drawing taken previously to its being finally deposited in the Museum of the College of Surgeons\*. In the Museum of St. Thomas's Hospital is likewise a large

\* "CASE XXVI.—WILLIAM TENNANT, ætat. 18, (tailor,) admitted on the 14th Jan. 1829, had been unwell with the usual symptoms of fever for eight days; no treatment had been adopted.

He complained, on admission, of epigastric tenderness; slight headach; thirst; pain of loins, and extremities; his skin was hot; his face flushed; and the tongue was coated at the root; red at the point and edges; pulse 100; state of bowels not ascertained.

Mittantur sanguinis e brachio 3x.: Pulv. aper. mit. h. s.; Ol. ric. 3fs. c. m.: Bibat mist. acid. pro potu: Abrad. capillit.

15. Pulse 96; headach and flushing continue; skin hot; tongue unchanged; three stools.

C. c. nuchæ ad 3x.: Rep. pulvis et oleum.

16. Pulse 92; slight pain of forehead only; skin less warm, but flushing continues: tongue dry, furred in the middle, edges clean and moist; three stools.

Impon. lotio gelida, et rep. pulv. et oleum.

17. Pain of forehead gone; less flushing; tendency to coma, and rambling, from which he is easily aroused, and answers intelligibly when questioned. Cont. med.

18. Pulse 112; passed a restless night, without sleep, but was more delirious; sensible, at present, but lapses frequently into a muttering dose; urine and stools passed in bed; tongue of same appearance.

Impon. emp. lyttæ nuchæ, et cont. lotio gelida capill. anteriori.

19. Pulse 120, soft, and regular, but very feeble; no sleep; muttering delirium unabated; tongue dry and brown.

Jus. bov. lbj., et cont. lotio.

20. Pulse 130, more feeble: breathes rapidly; skin becoming cold; lips livid; two stools.

Vini albi 3vj.: Cont. jus. bov. et lotio gelida.

21. Died last evening.

*Dissection.*—On sawing through the skull cap, a sudden gush of limpid fluid attracted attention; and on carefully removing it, and examining whence this fluid escaped, a considerable oblong depression was found in the middle lobe of the right hemisphere. On minute inspection, the fluid, which amounted to at least

cyst of the same kind situated between the two hemispheres, and obliterating by its pressure part of the corpus callosum.

twelve ounces, had been contained in a cyst formed by the splitting of the arachnoid membrane, which had pressed on the middle lobe of the brain, and thus produced a corresponding depression. The membranes and substance of the brain, (with the exception stated,) did not exhibit any morbid appearances.

The thoracic viscera were quite healthy. The abdominal viscera showed no traces of disease, except extensive ulceration of the ileum and cœcum.

This preparation is deposited in the Museum of the College of Surgeons of London."

## OBSERVATIONS ON THE FLUID OF HYDROCEPHALUS: BY DR. BOSTOCK.

“DEAR SIR,

Upper Bedford Place, March 20th, 1829.

“Besides what were mentioned in my last communication to you, I have examined various other morbid substances which you have transmitted to me at different times: of some of these I now propose to send you an account. I shall arrange my remarks under the three heads of Hydrocephalic fluids; Fluids from hydatids; and Substances connected with the liver.

“1. Of the Hydrocephalic fluids, the most remarkable was that procured from the well-known chronic case of James Cardinal, which was so long an object of curiosity in the wards of Guy's Hospital, and which was sent to me in the month of February 1825. It had the usual aspect and physical properties of a dilute albuminous fluid; it was of a bright lemon colour, without cloud or sediment; its specific gravity was 1011·38; the solid contents, when dried at a temperature of 200°, amounted to 1·84 per cent. The action of re-agents showed that the fluid contained albumen; muriatic acid in considerable quantity; soda, either uncombined or in a state of carbonate; sulphuric acid in minute quantity; a trace of lime; and a considerable portion of extractive matter, the nature of which will be examined below. The quantity of albumen was ascertained, partly by observing the effect of heat and the various re-agents on the fluid itself, and partly by subjecting the dried residuum to the action of alcohol and of water. The amount of muriatic acid was found by the intervention of nitrate of silver, and the uncombined soda by neutralizing the saline mass with acetic acid\*. The presence of sulphuric acid, of lime, and of potash, was respectively indicated by muriate of barytes, oxalate of ammonia, and tartaric acid.

“About one-fourth of the mass obtained by evaporation was soluble in alcohol, and of this, only a small part appeared to be of a saline nature. The residuum was subjected to the action of nitric acid; no oxalic acid was procured, but a quantity of pearly scales was formed, clearly indicating the presence of urea. By accurately comparing the results thus obtained with the effect of nitric acid on purified urea, I am induced to

\* For an account of this process, I may refer to my paper on Cutaneous Perspiration, in *Med. Chir. Trans.* xiv. 427, 428.



conclude, that about one-half of the residuum obtained from the alcoholic solution was urea ; while, from various considerations, I conceive that the remaining portion must be looked upon as at least approximating to what has been termed osmazome.

“ The following may be regarded as the proportion of the ingredients in 1000 grains of the entire fluid.

Water . . . . .	982·6
Albumen . . . . .	6·
Muriate of soda . . . . .	7·
Soda . . . . .	1·4
Urea and osmazome . . . . .	3·
Sulphuric acid, lime, potash . . . . .	a trace.

---

1000·0

“ As the presence of urea in the fluid of hydrocephalus has not, I believe, been noticed before, it may be proper to state more fully the evidence on which it rests ; and I think I cannot do this more effectually, than by a literal transcript of my journal of experiments. After digesting the residuum procured by evaporating the entire fluid in successive portions of tepid water, evaporating the solution thus obtained, treating the residuum with alcohol, and evaporating the alcohol, a second residuum was procured, which I describe as “ deliquescent ; by a gentle heat it was “ reduced to a semitransparent substance, partially brittle and partially “ viscid, exhibiting somewhat of a crystalline structure, but no distinct “ form could be perceived. It had a pungent taste : a drop of nitric “ acid added to a portion of it produced considerable effervescence, and “ there was an appearance like the pearly scales of the nitrate of urea. “ A quantity of nitric acid, diluted with an equal bulk of water, was “ added to the residuum ; there was considerable action ; heated over a “ lamp the whole was dissolved ; with extrication of nitrous vapour ; I did “ not perceive any nitrous gas. Set by to cool, after it had been gently “ heated, so as to diminish the whole by about one-third, a quantity of “ crystalline scales appeared round the edges. The next morning the “ whole was liquid, having attracted moisture from the atmosphere. It “ was now gently heated to dryness over the lamp ; the scaly crystalline mass again formed ; I should not have known it from nitrate of “ urea. By testing it with the solution of muriate of lime, it was found “ not to contain oxalic acid.”

“It is principally as forming a contrast to the above analysis, that I shall notice the examination which I made of two other specimens of hydrocephalic fluid; one in December 1827, obtained from the brain of a patient named Hosecroft (Case X. page 28.); and the second, in April 1828, from Mr. Streeter's case (Case XV. page 38.). Each of these exhibited the properties, both physical and chemical, which have been noticed in this class of substances. The specific gravity was considerably less than in the above instance, the amount of the solid contents not more than nine or ten parts in 1000; of these, eight or nine parts being muriate of soda, and not more than one or two parts in 1000 of animal matter, of which a very small part only appeared to be albumen. The circumstances in which the fluid obtained from the chronic, differed from that in the acute, forms of the disease, are as follows: 1. The whole amount of solid contents was more than double; 2. The quantity of animal matter generally was nearly six times greater; 3. The albumen in particular was perhaps twenty times more abundant; 4. It contained a considerable quantity of urea, while the muriate of soda and the uncombined soda were nearly in the same quantity in the two fluids.

“I am indebted to you for the means of examining the contents of three hydatids, two of them taken from the cavity of the abdomen, the other from the surface of the liver. The first of these, from a patient named Williams, exhibited the usual properties of a very dilute albuminous fluid; it was scarcely rendered opaque by heat, but the bichloride of mercury and the other re-agents decidedly indicated the presence of albumen. It was remarkable for being very slightly acid when first received, but, in a few days, after the process of decomposition had supervened, there was a considerable evolution of ammonia. The greatest part of the solid contents were muriate of soda.

“The second specimen of hydatid fluid, being in considerably greater quantity, I had an opportunity of more minutely examining its nature, and its relation to other fluids of the same class. Its chemical and physical characters showed it to be albuminous, although containing but a very small quantity of albumen. Its specific gravity was 1008; it was alkaline, but the excess of alkali was so small, that one part of the standard acetic acid added to 100 parts of the fluid, caused it to redden litmus. Besides the albumen, it contained an animal ingredient, not coagulable by heat, and soluble both in water and in alcohol, probably analogous to

osmazome. The following table may be considered as exhibiting a general view of its composition.

Water . . . . .	987.5
Animal matter, a trace of albumen, but principally a substance soluble both in water and in alcohol . . }	4.
Salts, principally muriate of soda, containing potash and sulphuric acid . . . . . }	8.5
	<hr/> 1000.0

In its specific gravity and the amount of its solid contents, it agrees very nearly with the fluid from spina bifida, as examined by Dr. Marcet, (Med. Chir. Tr. ii. 350;) but it differs in containing more animal matter, very much less uncombined soda, and no lime.

“The fluid from the hydatid of the liver was tinged of a brown colour, which was supposed to depend on the presence of bile; and by employing the appropriate tests this was found to be the case. In consequence of its colour, I was not able to ascertain whether it contained an uncombined alkali: in this respect it appeared to resemble the fluid from the hydatids of the abdomen: its solid contents consisted principally of the muriate of soda, with a small proportion of albumen; the quantity which I had for examination was not sufficient to enable me to ascertain whether it contained any other animal ingredient.

\* \* \* \* \*

“I have only to add, that I shall feel much gratified if any of the above statements may prove useful to you in the interesting investigations in which you are engaged.

“Believe me, dear Sir, very truly yours,

“J. BOSTOCK.”

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I have thus, in the present section, endeavoured to bring forward cases illustrative of a considerable variety of the causes, on which cerebral pressure and pressure of the spinal cord depend. In the first place, the pressure from Distended Vessels and Congestion has been seen producing apoplexy and apoplectic epilepsy. The stupor from opium; the drowsiness and dull wandering of bronchitis; the purple countenance and lethargy of emphysema of the lungs; the mingled dozing and convulsion of hoop-cough; and the occasional coma of fever;—have been traced to the

same source.—In the second place, Vascular Congestion has been shown tending to produce Serous Effusion, and thus to prove a still further and more permanent cause for pressure, in cases of suffocation from destructive fumes. The same result has been found where the circulation has been obstructed in the heart, and in bronchitis; while debility has been seen favouring the serous effusion in phthisis, and the disordered functions of the kidneys have, in all probability, promoted the same process in cases where those organs have been granulated, and in diabetes.—Thirdly, the effects of Effusion of Blood have been shown as it occurs upon the surface of the brain, in its substance, and into the ventricles; and an attempt has been made, by the statement of a considerable number of cases, to point out the processes by which nature gradually repairs these important injuries.—Fourthly, various organic changes have been adduced as the causes of symptoms indicating pressure; amongst which are different tumours arising from the dura mater and the arachnoid, or formed in the substance of the brain, chiefly of a fungoid or of a scrofulous character, and some apparently the result of gradual alteration in portions of the brain itself. Still more general changes in the structure and consistence of the brain are shown to produce effects analogous to pressure, and slight though extensive disease in the membranes, to be followed by similar results; to which division of the subject the paralysis from lead has been referred. The effects of compression and concussion of the brain and spinal cord from accidents have been here introduced; and the subject has been concluded by some cases of chronic hydrocephalus and spina bifida, and some still less active accumulations of fluid in cysts, perhaps congenital, or at all events not increasing latterly, and owing to that circumstance producing no symptoms of pressure.

Other causes of pressure might undoubtedly be mentioned; as, for instance, the congestion taking place in the brain in some cases of intermittent fever, where I have myself seen an instance approaching to periodical coma, and of which a still more marked case has been stated to me, by my friend Dr. Prichard of Bristol; a patient of his being actually reduced by each returning fit of an intermittent, to a state of temporary apoplexy. Amongst the organic causes might also be included softening of the brain,—of which several cases, with the observation they excited, will be found at the conclusion of the last section (page 176—196), and some varieties of tumours, of which no recent cases have occurred to my

observation ; such as melanotic tumours, and bony deposits in the substance of the brain, and the true acephalocyst hydatid, of which one, and perhaps two, specimens are preserved in the Collection of Guy's Hospital : and the enlarged vascular cysts, so frequent of a smaller size, attached to the choroïd plexus, of which Dr. Hooper has represented a striking instance in his work on the Morbid Anatomy of the Brain ; and it is probable that a few more causes of pressure may present themselves to the reader. I believe, however, that the most important will have been found illustrated in the course of the present section.

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When we consider the cases which have been included under the general head of Pressure, it will be evident that their classification involves some hypothetical assumption, and is grounded on the supposition that it is possible to refer all cases of paralysis to some cause producing pressure. The truth, however, is, that we are not altogether justified in assuming this as an axiom ; for although the well-known fact that pressure does produce paralysis leads us, in our anxiety to avoid multiplying causes for the explanation of similar effects, to turn to pressure as the cause, whenever it is possible fairly to trace it ; yet, as we are ignorant of the way in which pressure acts, it may be that other agents besides pressure produce that effect, be it what it may, from which paralysis results. Thus it is certain that a tumour within the dura mater must produce pressure : but how does that pressure injure the functions of the brain ? Is it by mechanically separating parts which ought to be approximated in order to produce healthy action ? Or is it by bringing those parts too closely together ? Or is it by any other intermediate effect ? Till these questions can be satisfactorily answered, we are not prepared to speak of pressure as the only cause of paralysis ; for it may be but one of many causes inducing a certain condition of the brain and nerves on which the paralysis depends. Still in almost all the cases of paralysis where we can trace any organic change, pressure may be inferred ; and hence I have associated with them a few cases in which no pressure can be demonstrated and no organic change can be perceived, because the symptoms have borne a strong resemblance : and if, without pretending to explain the unknown modes by which the nervous influence is communicated, we venture to assume as an hypothesis, that pressure produces its injurious effects by *interrupting* the circulation of blood, or rendering the natural communication of parts in

the brain and nerves imperfect, we shall at once bring the different cases into close analogy with each other.

When on the subject of Softening of the brain, I endeavoured to show how this condition probably produced pressure; but if this is not allowed, its power in *interrupting* circulation, and rendering nervous communication imperfect, will at least be manifest, and will probably be a more satisfactory solution of the symptoms: and the same may be said of those cases where pressure has been ascribed to general change of structure in the brain, changes in the membranes, and the effects of lead: and so likewise this general solution may be applied to many of the phenomena of concussion.

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OBSERVATIONS ON THE DERANGED ACTION OF THE KIDNEYS, AS IT AFFECTS  
THE CEREBRAL FUNCTIONS.

The very frequent connection which has been traced in the foregoing cases between cerebral pressure under its various forms, and diseased action and organic changes in the kidneys, has already been referred to. In the year 1820, Sir Henry Hallford pointed out the frequent termination of Ischuria renalis in coma and apoplexy; and in the following year Dr. Abercrombie illustrated this subject by some excellent cases and observations in the Edinburgh Medical and Surgical Journal. Now that which is so decided when the secretion is suppressed, is in some degree true when the urine is retained, so as possibly at last to obstruct its secretion; and is likewise marked, by a slower progress, both in diabetes and in the cases where renal irritation at length induces the disorganization of the kidney.—To this circumstance I had occasion to refer more than once, when in my former volume the diseased action of the kidney particularly occupied my attention, having then mentioned amongst the great sources of casual danger in that class of diseases, the effusion of blood or serum into the brain, and the consequent occurrence of apoplexy; and thus the two subjects of investigation bear mutually upon each other, as will constantly be found when we carefully seek out the varied connections and bearings of diseased action in the system.

There still remains much room for inquiry respecting the causes on which the morbid condition of the system depends when the urine is



imperfectly secreted. There is no doubt that in many cases the serum of the blood is highly impregnated with urea; but in other cases, this impregnation is much less apparent, and therefore it may be but in part the cause of the general derangement of the system. In some of the cases related in my former volume, Dr. Prout and Dr. Bostock succeeded in obtaining but small traces of urea: but Dr. Christison afterwards detected this substance very decidedly in some specimens of blood which he examined, taken from patients with albuminous urine: and Dr. Benjamin Babington has since kindly undertaken to examine the blood for me in two or three cases, in some of which he has detected, but in others has not detected, urea: and in one very remarkable case, where the albuminous condition of the urine has constantly existed (as far as I know from frequent experiments) for above three years, the quantity of urea in the blood is very considerable: yet the patient, who is a young woman, enjoys very tolerable health, and has a healthful appearance, between the severe attacks of anasarca, of which she has been the subject, but has latterly been affected with frequent fits, which assume a decidedly epileptic character.—How far the presence of urea, or the abundance, or deficiency, of any other principle in the blood, may be the immediate cause of such a degree of cerebral irritation as is capable of producing epilepsy, is a fair subject for inquiry; and we find by the communication of Dr. Bostock which I have just inserted, that urea was discovered in the fluid in the hydrocephalic head of Cardinal, who was latterly subject to fits of epilepsy; but what was the condition of his blood or of his kidneys, I have no means of ascertaining.

It was my intention to have introduced into this volume, numerous cases and observations which I have collected, serving to confirm and illustrate what I advanced in the former volume, upon the general subject of that diseased action of the kidneys which at length becomes demonstrable by organic change; but as I foresee that this will be impossible, from the length to which I have been led in illustrating the diseases of the brain, I shall take this opportunity of giving the results of two analyses performed by Dr. Benjamin Babington. The first was on the urine and the serum of the young woman of whom I have just spoken. The results were, that the urine did not contain one-third of the urea which it ought to have contained if healthy, while about one per cent. of albumen supplied its place.—The serum of the blood was remarkably light, in consequence of its deficiency in albumen, having a specific gravity of 1021 instead of 1030;

and the quantity of albumen in 1000 grains of serum amounting, after careful drying, to only 50 grains; whereas from 80 to 100 parts in 1000 is the usual proportion in healthy serum; and it contained fully as much urea as the urine did, the 1000 grains yielding nearly 15 grains of that substance.

The other analysis was performed on the serum of a man who had been for several weeks affected with anasarca, and whose urine was coagulable: he came under my care when labouring under a relapse, and left the Hospital nearly cured from all anasarca symptoms, but with his urine still albuminous. The general result of the examination may be expressed in the words of Dr. Benjamin Babington:—"The specific gravity being 1026, I did not anticipate any very marked deviation from the healthy constitution of serum: for, from repeated trials on former occasions, I have ascertained that the proportion of albumen in serum may be inferred with sufficient accuracy from the specific gravity.—The result has proved that there is little or no urea in the serum in question. Alcohol took up only seven parts in 1000, and these were made up of oil, of gelatine, and of salts, without a trace of urea either in smell or by crystallization with nitric acid."

From these analyses it appears, that urea at all events exists in very different proportions in the serum of patients affected with albuminous urine; and I should have no hesitation in saying, that in most respects the man in whose serum there was little or no urea, possessed in a much more decided degree that general cachectic appearance, and broken-down habit, which usually characterize those who labour under this disease, than the young woman did at the time the analyses were performed.

While occupied on this important subject, it may not be improper to state, that the experience and observation of three years have served, in the main, to confirm all the views I advanced, on the subject of albuminous urine, in my former volume. And I may take this opportunity of saying, that the experience of others, as far as it has been very liberally communicated to me, has been on the whole such as to add to my feeling of satisfaction. From many of my friends in this metropolis, and many who have had extensive opportunities of Hospital practice, I have received reports confirming my views.—To Dr. Barlow of Bath, I am indebted for some very interesting cases. Dr. Mackintosh of Edinburgh, in his volumes on the Practice of Medicine, has very kindly stated his general assent to

my views. Dr. Alison has likewise afforded the important weight of his favourable opinion. Dr. Monro, in the Catalogue of the Edinburgh Museum prepared under his inspection, (since my former volume was published,) has, by introducing granulated kidneys stated to have been taken from patients with albuminous urine, given his sanction to the same views. Dr. Christison, by his accurate chemical researches and careful clinical observations, has added much to the interest of the subject; having much more decidedly ascertained the existence of urea in the blood, by obtaining it in an undeniable form, and in a demonstrable quantity. Of the seven cases stated by Dr. Christison, six proved fatal; of which four only were examined after death, and in all of these, the kidneys were diseased; the result of the seventh was unknown. I have no doubt, however, from what Dr. Christison says, that he had seen others,—as I have many,—in which the cure had been to all appearance perfect; indeed a few such are detailed in my first volume, where it was the chief object, by the investigation of fatal cases, to show the traces left by the disease in the organ to which I had referred it: but the frequent relapses, and the total failure of remedies in many cases, still oblige me to consider the albuminous state of the urine as a very unfavourable indication, and, if it continues long, liable to be attended by such serious disorganization of the kidney, as to admit of little more than palliative treatment; and I consider the state of the constitution induced by the functional, and still more by the organic, derangement of the kidney, to be most unfortunate where any acute disease accidentally arises, or any severe injury is sustained, or where it becomes necessary to perform important operations; as I have no doubt that the tendency to irregular inflammatory action is increased, and that the power of repairing injury by healthy action is much diminished, by this derangement of the constitution. It would of course be very desirable to ascertain whether this tendency to disease in the kidneys exists, before undertaking any operation, and in many cases this may easily be done by submitting a small quantity of the urine to heat; if it coagulates, we know the inference; but I am inclined to think, that in some cases a single trial ought not to be relied upon if the urine is found not to coagulate, as casual circumstances seem occasionally to influence and repress this albuminous secretion; and I believe that sometimes the disease goes so far, when the kidney is large and soft and granulated throughout, that a simply serous secretion passes with scarcely any albumen, so that in one or two very

advanced cases the quantity of albumen has been very small ; and I early perceived that there was no direct ratio between the degree of the disease and the quantity of albumen. Perhaps in some doubtful cases, an examination of the serum of the blood, to ascertain its condition both as regards the presence of urea and the proportion of albumen, might be useful. It must also be borne in mind that, in cases of calculus in the bladder, the kidneys are apt to run into another state of disease, not indicated by albuminous urine, so that the absence of that principle will not absolutely prove the integrity of those organs.

As far as my additional experience enables me to judge, the best mode of treatment in recent attacks of this disease, is bleeding, both generally, if the patient bears it well, and locally from the loins by cupping, or, if any tender point can be ascertained from pressure, by the application of a considerable number of leeches, as near to the tender spot as possible ; pretty free purging may also be adopted if the bowels are not irritable, as they sometimes are, in which case purgatives must be given with caution, and the infusion of digitalis should be administered, in doses of one dram three times a day, in any vehicle suited to the collateral circumstances of the patient's health. Whenever headache is complained of, provided there is no reason to ascribe it to the digitalis or other remedies employed, blood should be taken, either from the arm, or by cupping from the neck ; for as long as this disease exists, the cerebral circulation is in danger, and no indication of this kind must be overlooked. This is the general plan of treatment I adopt, but it requires to be varied, and more particularly when the disease has become confirmed. I have then seen the combination of mercury with squills and digitalis give present relief, and produce apparent cure ; and sometimes in delicate constitutions I have known gentle tonics borne early and with great advantage.

REPORTS  
OF  
MEDICAL CASES,

SELECTED

WITH A VIEW OF ILLUSTRATING  
THE SYMPTOMS AND CURE OF DISEASES

BY A REFERENCE TO

MORBID ANATOMY.

By RICHARD BRIGHT, M.D. F.R.S. &c.

LECTURER ON THE PRACTICE OF MEDICINE,

AND ONE OF THE PHYSICIANS TO

GUY'S HOSPITAL.

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VOLUME II.

DISEASES OF THE BRAIN AND NERVOUS SYSTEM;

PART II.

INCLUDING

HYSTERIA;—CHOREA;—PALSY FROM MERCURY;—NEURALGIA;—EPILEPSY;—TETANUS;  
AND HYDROPHOBIA;

TOGETHER WITH A CONCISE STATEMENT OF THE  
DISEASED APPEARANCES OF THE BRAIN AND ITS MEMBRANES.

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SECTION III.

**DISEASES OF IRRITATION.**



### SECTION III.

## IRRITATION.

It is my intention to include in this division of the subject a number of diseases usually termed Nervous, some of which are strictly functional, while others occasionally owe their origin to structural changes.—I shall commence with Hysteria, and pass on to Chorea, the Paralysis jactitans, and Palsy produced by mercury, Neuralgia, Epilepsy, the Convulsion of children, and Tetanus ; and shall lastly relate a few cases of Hydrophobia ; —thus ascending from the mildest and most curable, to those which are more incurable, or have altogether defied the efforts of our art.

## CASES

### ILLUSTRATING SOME OF THE PHENOMENA OF HYSTERIA.

An acquaintance with this disease is of incalculable importance in a practical point of view, that we may not be led into error from the varied aspects it assumes, and that we may profit by the strong and daily assurance which we derive from its phenomena, of the power of functional disease in deranging both the voluntary and involuntary actions, for an almost indefinite period of time, leaving the body in such a situation that it may immediately resume all its natural operations, and producing no marks of structural change should casual death afford an opportunity of investigation.

The cases which may with propriety be classed with Hysteria, are very frequent, and assume such a variety of forms that they admit of being arranged under several distinct heads : first, The painful affections often imitating inflammatory diseases ; secondly, The spasmodic affections ; thirdly, Paralysis ; fourthly, Coma ; and fifthly, Mental aberration, whether delirium or more fixed hypochondriasis. These forms are generally more or less mingled together, but are often sufficiently distinct.

#### I. *HYSTERIA IMITATING INFLAMMATORY ACTION.*

This form of Hysteria has been well illustrated by my colleague Dr. Addison, who has very clearly shown the mischief resulting, from mistaking the pains connected with irregular uterine influence for those of an inflammatory character. The following cases, however, are here introduced by way of bringing the various forms of this disease under one view. The inflammatory disease which I have known hysteria most frequently imitate is peritonitis ; and nothing but the distinct history of the case, and the careful watching of its progress, can sometimes enable us to detect the true nature of the complaint : and in a disease so urgently dangerous as peritonitis would be, if attended by symptoms so severe as often accompany hysteria, it is always better to err in our treatment on the safe side, if no circumstances arise to determine our judgment : but it is seldom that we shall be in doubt for any length of time, or on a second attack, as the progress of the disease will almost always lead us to discover its real character.

In general, some great incongruity of symptoms will be detected ;—a tenderness of the abdomen, indicating inflammatory action, beyond any thing which the pulse, or the condition of the tongue, would authorize us to infer ; a hurry and even labour of respiration more marked than in the embarrassed breathing of peritoneal inflammation ; a sudden subsidence of symptoms, and their sudden return ; a shifting and changing of the tender or painful part ; and sometimes the decided intervention of hysteric symptoms, and the very frequent accompaniment of some evidence of mental causes, or of irritation and deranged function in the uterus itself. All these, together with the general aspect of the individual, will frequently be guides and indications to assist us.

Next to the suspicion of peritonitis, the belief that some individual organ in the abdomen is inflamed has been amongst the most frequent errors in cases of hysteric pain. Again and again have I seen complaints of this kind treated as chronic hepatitis, and the disease confirmed and the constitution undermined by the continued and repeated use of mercury ;—at other times the spleen, the kidneys, or the uterus are supposed to be the seat of inflammation ;—on other occasions the pain of the left side has been confounded with pleuritis ; and when accompanied by irregular or hurried action of the heart, which is very frequent, the pericardium has been supposed to be inflamed, or organic disease of the heart has been suspected : and some of the severer forms of hysteric pain in the head, may well excite a temporary alarm, lest that organ should become essentially diseased.

There are other still more local painful disorders, immediately connected with the irritable hysteric constitution, which may be referred to this head : such are certain affections of the mammæ, attended with tumor and hardness, as well as pain ; such are some affections of the joints, particularly the knee joints ; and some of those painful affections of the back, which have been supposed to indicate approaching spine disease ; and likewise some very peculiar painful affections about the soles of the feet, which have come on suddenly, lasted long in spite of remedies, and at length yielded to such treatment as the irritable and hysteric constitution would appear to require.

## CASE CCVI.

*Hysteria mistaken for Peritonitis and Hepatitis.*

I HAD a long interrupted attendance, in the years 1828 and 1829, on a young lady, the daughter of a medical man, who had been supposed by her father to labour under repeated attacks of hepatitis and peritonitis, being frequently seized with pain and acute tenderness of the abdomen, and more particularly of the right side; the pulse quick, the mouth clammy, and the nights sleepless, with occasional delirium. For this she was often bled to a large extent, and was put under the action of mercury. The attacks were sudden, and used to subside almost as rapidly as they came on, leaving her generally much exhausted by the treatment: she was during the whole time subject to dysmenorrhœa and to leucorrhœa, and had so great a debility in her lower extremities that it amounted almost to paraplegia, and she was obliged to be carried up and down stairs. From the frequent bleedings, her aspect had become blanched and puffy. It was quite obvious that though the active remedies gave present relief, they always left her in a worse state than they found her; and she had become so nervous that she could not bear the motion of a carriage, and every attempt to put her forwards was always followed by a fresh attack. Under these circumstances astringent lotions for the leucorrhœa, and the zinc and gentian persisted in for several weeks, together with domestic circumstances demanding some mental exertion, restored her completely.

## CASE CCVII.

*Hysteria supposed to be Peritoneal and Pleuritic Inflammation.*

SARAH MITCHELL, aged about 22, was admitted under my care, complaining of palpitation at the heart, pain in the loins and leucorrhœa, confined bowels and irregular catamenia. It appeared that she had now been out of health about three months; that the first attack was in the head, with a sense of fulness and great dimness of sight. She was freely bled, and getting better from this, was seized with pain in the abdomen and tenderness, for which she was bled and leeches. Pain then came in the back, followed by severe pains in the chest and violent palpitation of the heart, for which she was bled; on the whole she had been bled six times, besides having been leeches and cupped. I immediately ordered her fifteen grains of aloes and myrrh pill every night, and half an ounce of the compound steel mixture, and the alum and zinc wash to be injected into the vagina. While she remained under my care I had opportunities of witnessing several relapses of pain and tenderness, both in the abdomen and back, and for two days the headache was intense. She persisted however in her remedies, except that on one occasion cupping-glasses were applied to the nape of her neck, in consequence of the continuance of severe headache.—She left the Hospital quite well.



## CASE CCVIII.

*Hysterie Headache.*

DURING the last spring I was called to a young woman, of about 22 years of age, who after suffering slight headache for a few days, was affected with excruciating pain in the head and intolerance of light for two days, followed now by urgent vomiting; the tongue slightly furred, the pulse frequent, irritable, and rather sharp. These were symptoms well calculated to excite anxiety; and although I found that there was some slight irregularity in the catamenia, I thought it right to apply leeches to the temples and afterwards to take away twelve ounces of blood from the arm. The blood was not buffed, nor was the pain diminished. Free purging also gave little immediate relief. A blister was applied to the neck with better success, and the compound steel mixture ultimately removed the pain.

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Those who have witnessed the approach of formidable head affections, well know how to appreciate the anxiety excited by cases like the foregoing; scarcely are the symptoms to be distinguished from the commencement of attacks which terminate in effusion.

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## II. HYSTERIA ATTENDED WITH SPASMODIC ACTION.

This is the most frequent form of true Hysteria, including the ordinary hysteric paroxysm, the hysteric epilepsy, and many anomalous affections, shown more particularly in the respiration, the deglutition, and the power of articulating, and assuming a mixed character of spasm and paralysis.

## CASE CCIX.

*Hysterie Spasm with Coma.*

REBECCA VINCENT, aged 17, was brought to the Hospital, October 15, 1825, in a state of perfect insensibility to all external objects; countenance rather flushed, eyelids closed, and mouth obstinately shut, with no convulsive movements of any kind. Her hands were clenched, and upon forcibly extending the fingers they again immediately closed. The eye was not red, but the pupil appeared fixed when the eyelid was raised; breathing easy but slow; pulse 106, weak; feet cold.

She was cupped from the neck, a blister was applied to her head, and sinapisms to the feet, and powerful cathartic injections were administered; before the following

morning she was so much recovered as to be able to give some account of herself, and it then appeared that she had experienced one or two hysteric attacks. She complained of tenderness of the abdomen and intense headache; this was afterwards succeeded by urgent vomiting; and as these were relieved by leeches and sinapisms, she complained of pain in the left side of the abdomen; cathartics and a blister removed this; and in a few days she left the Hospital well.

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I have seen a case very similar to this in a married woman, who was supposed to be three months advanced in pregnancy, and who had never before had fits of any kind. In her, the rigidity was general, the arms were bent, the hands closed, the legs extended, and the back bent, as in slight opisthotonos; her countenance was pale, and her breathing perfectly tranquil during the fits: viewing her face and general appearance as she lay covered in the bed-clothes, she might have been considered in a perfectly tranquil sleep. The modifications of this hysteric coma, or carus, are considerably diversified, and instances are not wanting of its continuance, almost without interruption, for many days, or even for weeks. That singular form of disease which has been called Catalepsy is in some cases nearly allied to these affections, though it is said often to attack those who are not otherwise liable to hysteric symptoms. Another case of the genuine hysteric epilepsy will be found hereafter related under the head of Epilepsy.

### CASE CCX.

#### *Hysteric Convulsions.*

WAS called to see a young lady, about 18 years of age, respecting whom the parents had begun to entertain a lively alarm, in which their medical attendant could but little participate. She had, for the two preceding nights, been agitated by the most violent convulsive struggles of every part of her body. Although the day had passed more tranquilly, her countenance was still distorted, and she was scarcely collected in mind, when I arrived; and the fear now was, lest the next night should be spent, in the same state of distress as the two preceding had been.

A blister had just been applied to the nape of the neck; and mustard poultices to the scrobiculus cordis; and in addition to these, assafoetida injections, and sulphuric æther, were amongst the remedies which secured for her a favourable abatement of symptoms. When we met the following day, we had reason to believe that the disease had subsided; but as the evening came on, the paroxysms returned with increased violence. A stream of cold water was immediately poured upon her head, as it lay

over the side of the bed, and the fit subsided: a pail of water was kept under the bed, with the assurance that it would be used if the fit returned; and she got quite well for the time, though much free action on the bowels, and further attention to the state of the uterine functions, were afterwards necessary; and occasional returns of the disease continued for some time.

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This was an ordinary case of hysteria, depending on slight derangement of the uterine system, and most likely some temporary congestion within the head. The remedies were all calculated to relieve, and probably both the body and the mind assisted in the cure. The recurrence of the fit each day, at nearly the same hour, is one of those circumstances which is frequently observed in hysteric diseases, and it was chiefly with a view to this that I have mentioned the case. The power of the mind over this disease is strongly shown in cases such as the present, in which the expectation even, of some severe remedy, will often prevent the recurrence of the fit. On the other hand, excessive sympathy from the attendants is often a cause of aggravation, and of a continuance of the attack; so that in large establishments, such as Hospitals, it is a common observation that some wards are much more favourable for putting a stop to these diseases than others, on account of the firm character of the head nurse or sister.

#### CASE CCXI.

##### *Hysteric Hiccup.*

I WAS requested to see a young lady in the City, who had lain for a fortnight suffering day and night from a convulsive effort, something between a hiccup and an attempt to vomit: this was incessant; I heard it as I entered the house-door, though she was in the bed-room above stairs.—She was weak and exhausted, with a clammy perspiration, and a dry tongue: it was impossible not to feel anxiety for the result. A blister to the nape of the neck, cold to the forehead, frequent doses of sulphuric æther, and purgatives of cathartic extract and the compound galbanum pill, tranquillized the whole in the course of the night, and in two days she was quite well.

#### CASE CCXII.

##### *Hysteria, with Spasmodic Exclamation.*

MARY GOSLING, aged 18 years, was admitted, under my care, into Guy's Hospital, July 8th, 1829. It appeared that the catamenia had come on regularly at the age of eleven years, and she had enjoyed good health upon the whole till about ten months

previous to the time of her admission; at which period, having suffered a good deal from anxiety and over-work, she became the subject of deep involuntary sighing, recurring very frequently; but this within the last six weeks had become much worse, and her present condition was very distressing. She was unceasingly uttering a sound, like "Heigh-ho! Heigh-ho!" at regular intervals of three seconds, so that the sound was repeated twenty times in every minute, unless it was at times changed for the single word "Heigh!" which was then repeated thirty times in the same period: this sound was, however, to a certain degree and for a short time under her controul, so that she could check it, with much apparent exertion, for a few moments while she uttered a short sentence; but it was immediately resumed when she ceased to speak; and if she attempted to put two or three sentences together, they were interrupted by this spasmodic and almost involuntary sound. She appeared to be much exhausted by the perpetual exertion; and I immediately ordered her head to be shaved and kept damp with a cold wash, and occasionally to be sprinkled with water: and a blister to be applied between her shoulders. Fifteen grains of colocynth and calomel were immediately administered, and the camphor mixture with the sulphuric æther was given every six hours.

9th. The purgative had been assisted by some senna, and had acted very freely, bringing away a large quantity of hardened fæces, and the general result of the remedies had been most favourable; for towards four o'clock this morning the spasms had gradually subsided, and at the time I saw her she was perfectly tranquil. To insure a continuance of these favourable symptoms, I repeated the purgative two or three days following, and she was completely restored. She afterwards became the subject of cynanche tonsillaris; and when convalescent, had one or two slight relapses of her hysteric symptoms, but they were removed by similar remedies; and by the use of the shower-bath the tone of her system was established, so that she left the Hospital quite well.

### CASE CCXIII.

#### *Hysteric Dyspnœa.*

In August 1829, I was struck when passing through one of the wards, by the excessive spasmodic exertions of a female patient, whose face I remembered to have seen a year or two before labouring in the same way in another ward of the Hospital. On inquiring, I learnt that four years ago she had suffered from a severe inflammation of the chest, and had never been quite well since that time, being subject to frequent attacks of dyspnœa of a very singular character; from this she had never been free for more than three months at a time, and seldom more than five weeks; it came on rather suddenly, and lasted four or five days, or sometimes several days, but always intermitted completely during the night, so that she slept with perfect tranquillity for seven or eight hours, but on waking began afresh. The effort in breathing

was most remarkable, consisting of a constant drawing up of the shoulders quite to her ears, and this repeated at each inspiration, which took place twenty-five times in a minute, with a kind of sobbing sound almost like a pair of bellows.—Her cheeks were more florid or purple than natural, and she complained of pain in the region of the spleen. Various remedies were employed in this case, and all the purgative and anti-spasmodic remedies in their turn gave temporary relief; blisters on the neck and on the vertex also seemed to act well for a few days, but the symptoms quickly returned; and though she left the Hospital at a time of temporary tranquillity, there was every reason to suppose that she would relapse.

This young woman having suffered a severe return of her complaint, became a patient at the Surrey Dispensary, where the steady administration of purgatives for many weeks appeared to have produced a permanent cure, for she was free from every symptom during five months; and she has since only had one or two very slight and temporary attacks. Leucorrhœa has been constantly present both during the paroxysms and the long intermissions, but the catamenia have been regular.

#### CASE CCXIV.

##### *Hysteric Dyspnoea.*

I WAS passing through the wards of Guy's Hospital one day during the last winter, when one of the Surgeons requested me to look at a female patient, who had formidable disease of the mamma: she had been seized with alarming dyspnoea; her respiration was performed with a most unusual effort, but was not so much hurried as laborious, and she complained of a constriction across the chest, which was altogether unconquerable. Pulse very quick: it had been believed by some that she suffered an attack of pneumonia; but there was no cough, and the breathing was rather with effort than with pain or difficulty: her feet were quite cold; the pulse weak: she was in a state which might have resulted from sudden effusion into the chest or the bursting of an aneurism. This was hysteria,—and assafœtida was its cure.

#### CASE CCXV.

##### *Hysteric Trismus.*

IN the year 1825, I had under my care, in Gny's Hospital, a case of hysteric trismus, which lasted fourteen days. It was in a young woman of marked hysteric constitution, who had been subject to loss of voice for many weeks previously. Repeated injections of castor oil and oil of turpentine were administered, and several doses of calomel, which were with difficulty got between her teeth, so firmly were the jaws brought together. She was cupped on the region of the liver, and a blister was

applied to the nape of the neck. After remaining in nearly the same state for a fortnight, she suddenly regained the power of opening the mouth, and her voice became much stronger than it had been for a long time, and continued so.

### CASE CCXVI.

#### *Hysteric Dysphagia.*

AMONGST the symptoms in hysteria, difficulty of deglutition is by no means uncommon. I once saw a female, who was sent to the Hospital as being the subject of stricture of the œsophagus: it was stated, that the difficulty of swallowing had been upon her for several weeks, and was increasing. The Surgeon under whose care she entered, was immediately struck with her age, (which was less advanced than that in which we usually find serious strictures of the œsophagus,) and her appearance, which did not bear the marks of organic disease. However, he thought it right to examine the œsophagus by means of a probang; and no sooner was the instrument introduced, than the patient went into an hysteric fit, which was followed immediately by hysteria in several females in the ward. The disease, fortunately for the young woman, proved to be nothing but an hysteric constriction, and was soon completely removed.

A woman of 40 years of age was admitted into the clinical ward, with a peculiar spasmodic seizure, excited by the act of swallowing liquids, which immediately brought to the mind the appalling spasms of hydrophobia, and was decidedly of an hysteric character.

### CASE CCXVII.

#### *Hysteric Loss of Voice.*

ANN COLLINS, aged 50, was admitted into Guy's Hospital, under my care, November 3rd, 1830, having completely lost her speech since the preceding day. When she attempted to speak, the lower jaw moved up and down rapidly almost like what is observed in the cold fit of an ague; but only a kind of whispering sound proceeded from her mouth. The tongue was protruded straight. It appeared that she had been rather subject to ordinary hysteric attacks all her life, and for the last four years had occasionally felt numb and pricking sensations in her hands. The present attack had taken place on the preceding morning, beginning by a constrictive feeling about the fauces, and had followed, a few hours after, a severe hysteric fit. Her age, and the full ruddy appearance of her cheeks, led me, before I had heard any part of her history, to suspect this to be of a paralytic character; but a moment's inquiry seemed to decide that it was hysteric. I ordered her to lose fourteen ounces of blood from the neck by cupping, to take fifteen grains of colocynth and calomel, and some castor oil in the evening; and after the bowels had been well emptied, she was to take camphor mixture with tincture of assafoetida.—The following day considerable improvement had



taken place, so that she could make herself understood, though she was much agitated as she tried to speak. On the following day she could speak distinctly; and after taking one or two more, active purgative doses, she left the Hospital well.

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### III. HYSTERIA, IMITATING PARALYSIS.

It is not very common to find this affection uncombined with some spasmodic symptoms, rendering the disease mixed in its characters, so that the inability to perform certain voluntary actions seems generally to depend rather upon the spasm than the paralysis. Such are some of the cases I have just related, and such the very frequent instances which occur of young women altogether unable to empty the bladder without passing the catheter,—a condition which has remained for months, and has then been removed by purgatives and diffusible stimuli, or has passed off without any one being able to assign a cause for the cure.—The following case, however, had little or no complication in its symptoms.

#### CASE CCXVIII.

##### *Hysteric Paraplegia.*

ANN Moss, aged 24, was admitted into Guy's Hospital, under my care, October 25th, 1826. She was rather a delicate young woman, and had so completely lost the use of her lower extremities, that she was unable to walk a step without support. It appeared that this had been her condition, with very little change, for the last seven years: her catamenia had been obstructed about the time this complaint first came on, and for the last two years had never made their appearance. I examined the spine very carefully, but could discover nothing like disease: she occasionally complained of pain in her temples, and her bowels were constipated.—The medicines I gave her were directed entirely to strengthen her general condition by bringing the stomach and bowels into better action; and I employed counter irritation both by the ointment of tartrate of antimony, and by repeated blisters to the loins. For a long time very little improvement took place; the catamenia returned in sparing quantity, and attended by great dysmenorrhœa; but at length, when she had been seven or eight months under treatment, she became rapidly well, and left the House walking as if she had never been ill. So great was the change, that I received two very complimentary and grateful letters from the clergyman of the country village where she lived, for my successful treatment of his parishioner.—This disease, formidable and

hopeless as it had appeared to those who had taken another view of its nature, was but a modification of hysteric affection.

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#### IV. HYSTERIA, WITH MENTAL AFFECTION.

The mental affections connected with Hysteria present themselves under two or three modifications: sometimes as delirium, with great excitement, as is often seen in females under circumstances of overwhelming grief, and occasionally in painful diseases of hysteric character, or as a sequel to hysteric epilepsy, or mingling itself with the ordinary hysteric paroxysm.—This form of mental affection is generally very fugitive, though often truly appalling whilst it continues, and sometimes degenerating into a more or less fixed maniacal condition.

Another form of mental delusion, which accompanies the hysteric state, is nearly allied to hypochondriasis, turning the mind constantly to the contemplation of bodily infirmities, and exciting such an influence over the combined powers of mind and body, as almost to create in the one, the evils figured by the other; and so far weakening the force of mind by which the illusion might be resisted, that the patient is borne along, the unwilling but conscious victim of her imagination.

#### CASE CCXIX.

##### *Hysteric Hypochondriasis.*

I WAS requested several years ago by a medical friend of the greatest experience and practice, to see for him occasionally, a young lady, of excellent disposition and cultivated understanding, under peculiar circumstances of health. She had already been confined to her bed for above nine months; if she attempted to move, she was thrown into a paroxysm of agitation and of excruciating agony, affecting more particularly her abdomen: she had almost lost the use of the lower extremities, and complained of constant throbbing in her temples; and she and her friends seemed to give up all hope of her restoration. She had no appearance of important disease; her countenance bore no marks of visceral mischief; nor was it possible to discover any proof of organic change.—It was not to be doubted that this was of the nature of hysteria; and looking to the range of medicine already employed, we saw no hope, except in some unusual circumstance arising, to excite the mind, and change the train of mental operation.—She seemed to have derived relief from some stimulating injec-

tions and from some pills; but as her friends were in moderate circumstances, I talked seriously to her mother, and recommended that she should, instead of the injections, use a small quantity of simple water, and should substitute bread for the pills. The mother soon began to see that these simple means produced the same tranquillizing effects on her daughter which had hitherto been ascribed to the medicine.—My visits became less frequent,—I was absent for a fortnight:—on my renewing my visit, no change had taken place. I attempted to get her shifted gently from the bed to the sofa, but it was impossible, the paroxysm almost overcame her: I had a mattress brought to the bed-side; there was still the same difficulty after every successive trial. Once (after having attended altogether about nine months), I called after an absence of nearly a month; her sister met me at the street-door with a smiling face, to tell me that our patient was quite well: and on inquiry, she related how three mornings before, under a deep religious impression, she had completely recovered all her powers; and I found her sitting up working and amusing herself, as if she were completely convalescent from some ordinary illness.

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Cases closely resembling this are by no means uncommon, and there are few practitioners who have not met with them occasionally; and fortunate would it be, if it were always possible, as in the last case, to direct some powerful mental emotions towards the cure: but it too frequently happens, that year after year is consumed by these almost fanciful ailments, till at last the frame breaks down, and positive disease establishes itself.—I am at this time occasionally consulted about a lady, who has been confined to her bed for between four and five years, giving way to all the morbid feelings of this dreadful disease to such a degree, that, although no one, of the many who have been consulted, has ever been able to detect any actual disease, she is now emaciated to the last degree; her stomach, by long yielding to its apparent debility, is at length reduced to such a condition that it will admit of scarcely any nourishment, and the patient exists almost entirely on brandy and water, of which she drinks a most incredible quantity. She sits propped up in bed, speaking in a whisper: her countenance blanched; her hands emaciated; her eyes closed to the light, and dreading almost a footstep in the chamber, on account of the pain it excites in her head.—In her case, remedies are but imperfectly persisted in, and the disease fostered by the ill-judged sympathy of overfond relations.

I have even seen in the wards of the Hospital cases of this kind, generally taking place in females who have suffered some considerable mental

agitation from the loss of relations, or from other afflictions; and the disease has commenced rather suddenly, by some peculiar and oppressive pain about the præcordia, to which has followed during months, and even several years, such a succession of anomalous pains, of indescribable sensations, of partial loss of powers, and of perverted functions of stomach, bowels, and kidneys, as to bid defiance to any classification or nomenclature.—Not unfrequently, hæmorrhagic attacks have come on in the course of the disease, in the form of menorrhagia, hæmatemesis, or epistaxis; and in one case, the general debility induced by the inactive state of body and the unwillingness to take food, coupled with the depression of mind, brought on after many months, a well-marked and severe attack of genuine scurvy, with fungous gums, and large effusions of blood into the gastrocnemii muscles. The result of cases of this kind becomes more precarious the longer they continue; but we may always look forward, as long as no serious disease has become superadded to the original affection, that some favourable change, as little explicable as the rest of the disease, will take place as suddenly as did the first attack.

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The following case will serve to show the influence of uterine irritation in determining the character of the cerebral affection.

### CASE CCXX.

#### *Nymphomania attendant on Disease of the Neck of the Uterus.*

Mrs. M., at the age of 74, became the subject of most decided and violent nymphomania, with such aberration of mind, and such furious demonstrations of the peculiar turn of her feelings, as rendered it necessary on several occasions to subject her to personal restraint. She had been a stout healthy woman; had been twice married, and was the mother of eight living children. During the continuance of this peculiar derangement, which lasted at intervals till her death, she was two or three times the subject of slight and transient paralysis, principally affecting the organs of speech; and she latterly became somewhat imbecile; and from being a remarkably active woman, became inert and listless; she lived, however, nearly five years from the first attack of her ailments.

#### SECTIO CADAVERIS.

The head was not examined; but the only disease discovered in the other cavities was a considerable calculus, apparently of cholesterine, in

the gall-bladder, and a peculiar, and marked disease in the uterus. At the os uteri and growing from it was a tumour, of a vesicular character, of the size of a large hazle-nut, containing a transparent fluid, and projecting towards the vagina. The cervix uteri itself was much thickened and hard to the touch; and on being cut through, two or three cysts of the size of peas were seen in its substance. About half an inch from the tumour just described, attached to one side of the uterus internally, another similar tumour arose, evidently composed of four or five cysts, parts of which were seen through the membrane which covered the whole: having divided this tumour by cutting down upon it carefully, a cyst of considerable size was laid open in the body of the tumour, and from the bottom of that arose a globular vesicular body. (Plate XXXVIII. Fig. 1. & 2.) Still further along the internal cavity of the uterus might likewise be seen indications, though less obvious, of similar vesicles forming within the substance of the organ; and it was to be inferred, that the larger tumours had like them formed beneath the mucous lining of the cavity, and had by their enlargement forced the membrane before them, and thus become prominent above the surface.—I was not myself present at the examination, but was favoured by Mr. Mountford, who had attended the patient, with the morbid parts as soon as removed; and though, perhaps, some further light might have been thrown upon the case had the brain been examined, yet it is possible that no material organic change existed in the head. At all events, the case is interesting as showing a state of the uterus, which was no doubt chiefly instrumental in determining the character of the mental disease.—When I first saw the external tumour, I thought it depended on an obstructed and enlarged condition of the glands of Naboth; but from the internal structure of the morbid growth, and from the traces of similar vesicular bodies in the substance of the organ, it may probably be considered by some as an incipient malignant disease.

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Looking to the few cases which I have now recorded, we see the extent and diversity of those ailments which depend on the influence of hysteria; and many more subordinate varieties might still be added. This peculiar condition of the nerves seems to owe its origin, more or less directly, to the extensive nervous sympathies of the uterus, which are capable of being anatomically demonstrated as well as pathologically inferred; and no one who is accustomed to hear a description of the varied sufferings of women

during the different periods when the uterus is called upon to perform its natural functions, from the time the catamenia first appear, to the time of their cessation, whether in its unimpregnated or its gravid state, will for a moment feel surprised at any list of ailments, which may accompany its morbid actions. With regard to the actual condition of the nervous system, we know nothing but from the symptoms: these seem to bespeak a state of irritation, accompanied by irregular distribution of blood, and local congestion. In the treatment, our first business is to seek out any indication of irregular uterine action, suppressed or deficient menstruation, dysmenorrhœa, menorrhagia, or leucorrhœa; and if any of these are discovered, particular modifications of the treatment will at once suggest themselves: and then, by ascertaining the seat of any partial or local congestion, we shall be still further directed in our treatment.—In the more simple cases of hysteric affection, purgatives of such a kind as are calculated to act upon the large intestines, affording them a certain degree of tone, as well as stimulating them to the complete discharge of their contents, are undoubtedly the most safe and efficacious remedies; and I know of no combination more fitted for this purpose, than the colocynth or aloes, combined with galbanum and the foetid gums, so administered as to produce a regular and efficient discharge. Various combinations of purgatives will, however, suggest themselves under different circumstances, and it will frequently be right to administer at the same time tonic and chalybeate remedies; nor will the propriety of tonics preclude the use of local depletion, which is often most beneficial, particularly the abstraction of blood from the temples and the nape of the neck, when the severity of the symptoms leads to the conclusion that the cerebral circulation is considerably disturbed. It is necessary, however, to use great discretion in the employment of depletion, and not to be induced, by every wandering pain, to have recourse to the lancet. I have seen pains the most acute, particularly in the head, only aggravated by the loss of blood, and yield readily to the compound steel mixture.—Cold applied to the head, and more especially the sudden application of cold, assists in diminishing the cerebral congestion: and by the shock of cold water to the surface of the face, it is not improbable that some direct effect is produced on the par vagum and its associated nerves, which seem deeply implicated in hysteric attacks.—Blisters are likewise very useful, applied over the parts affected with hysteric pains, and to the nape of the neck in various and



frequent forms of such diseases.—In all the forms of hysteria, great assistance is occasionally derived from the class of remedies included under the general appellation of diffusible stimuli ; as the ammonia, the camphor, and the æthers ; and to the former of these I have seen many obstinate cases decidedly yield ; and amongst others, severe and long-continued local pains, in the cure of which the belladonna plaster has also appeared materially to assist.

## CASES

### ILLUSTRATIVE OF THE PHENOMENA AND CURE OF CHOREA.

CHOREA is a spasmodic affection, and appears in two forms so different, that, if we consider them the same disease, we must at least distinguish them by the terms of chronic and acute; and the acute form itself, differs much in the degree of violence which marks the attack, and the progress of the disease.

In the chronic disease may be included unmeaning or involuntary motions, which vary much in degree, actions to be looked upon as mere awkward tricks, performed quite unconsciously; as well as to a variety of often-repeated convulsive motions, more or less painful to the individual from the knowledge of their existence, and an ineffectual attempt to overcome the tendency to motion, which seems altogether irresistible. Sometimes the period at which the affection has come on, is unknown, and seems to have existed from the earliest childhood; sometimes, on the contrary, the time is distinctly remembered, and referred to by the patient.—As far as my observation goes, I should say, that it is more the disease of males than females: it is a chronic affection, often continued by habit, attended with no danger, but seldom admitting of a cure.

The acute form of chorea affects children more than adults, and females perhaps more than males; but it is not unfrequent at any period from six or seven to twenty or twenty-two years of age, and in all these periods occasionally attacks males. Its progress varies considerably. In a few instances the attack is marked and abrupt, and the disease shows itself at once with all its characters. In general the commencement is almost unperceived; little or no complaint is made by the patient, and the friends are either inattentive, or ascribe the peculiar movements observed, to accident, to playfulness, or probably to perverseness: after a few days, however, or at farthest a week or two, the movements of the fingers, the lips, or the feet, become too marked and too frequent to elude observation; and there is, on close inquiry, some pain in the head, seldom acute, but rather dull and oppressive, and some feeling of deranged health is often discovered: the involuntary motions sometimes continue moderate, or even trifling, for weeks and months, and the general health scarcely suffers: but at other times they go on increasing from day to day, till they

bear all the marks of the most violent and unrestrainable convulsion ; and if unchecked, inevitably proceed to the destruction of the patient, who, worn out by the unceasing irritation and the constant exertion to which he is impelled, falls into a state of exhaustion, and sinks with weak pulse, dry brown lips and tongue, and muttering delirium, such as attend the advanced state of typhus fever. A predisposition to this disease is sometimes hereditary, or at least exists in several children in the same family ; and probably this predisposition is sometimes connected with organic derangements, either in the course of the nerves or in some distant organ, as the uterus. In the year 1824, I had under my care a brother and sister both affected with this disease, and the mother assured me she had the same complaint when a child. In March 1825, I dismissed a little girl cured of chorea from Guy's, whose cousin, living quite separate, and never communicating with her, was affected with the disease at the same time.

The exciting causes are various :—the most frequent are, alarm, or other sudden or deep affection of the mind ; irregularity or suppression of the menstrual discharge ; and the state of pregnancy ; occasionally blows and falls are followed by this disease ; and sometimes the existence of chorea in one individual becomes, through the medium of the imitative propensity, the exciting cause of the disease in another. The process of second dentition, and the changes taking place at the age of puberty, sometimes act as exciting causes of this disease.

Chorea is associated with amenorrhœa, with rheumatism, with roseola, and urticaria : but the exact mode by which they are connected, whether cause and effect, or as depending on the same exciting circumstances, is not easily determined. Chorea has occasionally been followed by imbecility or actual aberration of mind. It appears to have affinity with hysteria, epilepsy, tetanus, and the convulsive disease depending on the fumes of quicksilver. These affinities are of the highest importance, as they may lead us to adopt remedies from the more manageable to the less manageable of the train of diseases.

Our prognosis in chorea is decidedly favourable, although it does occasionally terminate fatally, either from exhaustion, or from the sudden effect of the convulsion : this latter termination I have seen in adults and in pregnant women ; the former I have known occur in delicate children, and likewise in the case of a young woman.

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In the Treatment of this disease I have very seldom met with a case where general bleeding seemed to be indicated ; though, when the disease has come on in pregnancy, or in robust young women evidently plethoric, it will occasionally be well to take a moderate quantity of blood from the arm. Local bleeding is much more frequently required ; and for this purpose, leeches to the forehead, and leeches and cupping to the nape of the neck and the spine, are to be employed. But the abstraction of blood in any form is rather a measure of precaution, to relieve temporary congestion or prevent mischief in the course of the violent agitation, than the remedy on which we can rely for the cure. In a few obstinate cases I have thought it justifiable to apply issues, setons, and blisters to the nape of the neck. Purgatives are much more essential ; but I have seldom been fortunate enough to cure the disease by purgatives alone. In the case of children, I have generally prescribed the compound scammony powder, or the combination of scammony and calomel every other morning ; and with young women more advanced, the aloes and myrrh pills every night, in sufficient quantities to act freely ; and in one or two very obstinate cases, I have had reason to ascribe very good effects to calomel given for three or four nights nearly in succession, in five-grain doses, and followed by a purgative in the morning.

Tonic remedies are those on which the chief reliance is to be placed, though they always require to be combined with purgatives. It will often be necessary to persist in the use of tonics for a long time, gradually increasing the dose. The mineral tonics are most efficacious ; and of these the sulphate of zinc cautiously increased, and the subcarbonate of iron, are least liable to do harm.—I generally begin with a single grain of the sulphate of zinc, and increase it every second or third day, one grain at a time ; in which way a child of ten years of age, will often take ten or twelve grains in the form of pills, three times a day, without suffering the least inconvenience. —The zinc has sometimes proved effectual when the iron has not ; and, on the contrary, the subcarbonate of iron will sometimes succeed when the zinc has failed ; but often requires to be increased to such an extent, that the powder becomes very disgusting to the patient, simply from its bulk. I have given it in doses of half an ounce, and I believe larger doses have been given. In some cases, more particularly those which are accompanied with amenorrhœa, the compound steel mixture, repeated as frequently as every fourth hour, is an efficacious

mode of administering iron, and is less unpleasant than the powder of the subcarbonate. I have occasionally given with advantage the tincture of the muriate of iron. I have known instances in which arsenic has been successfully administered; but I object to this remedy, where others less hazardous will act as well. On the same ground I should object to the use of the nitrate of silver, which has often permanently changed the colour of the skin, though I have seen it administered by others with utility in chorea; the sulphate of copper is another remedy, which I think objectionable on account of the irritation it often produces in the stomach.

In conjunction with the mineral tonics, the cold shower-bath is a most valuable remedy, and I am in the habit of prescribing it to be used two or three times a week, on the mornings when the purgative is not taken. I have seen cold affusion of great utility, when the spasmodic action was so great as to render it impossible to employ the shower-bath; in the period of convalescence, bathing in the sea will greatly assist in giving tone to the system. When the irritation is very great, the various anodynes will be useful, and none has appeared to act better than the hyoscyamus with camphor, frequently repeated.

With regard to diet, it must be very carefully regulated, and should be generous rather than spare, unless there be evidence of inflammatory affection or fever being present, as in the cases where rheumatism or eruptive disorders are concomitants of the disease; and sometimes an improvement in the diet, more particularly the addition of a glass or two of wine, has produced most marked benefit in very unpromising cases, and apparently proved the means of preserving life. When the condition of the patient will permit, and more particularly during convalescence, exercise in the open air will much conduce to the cure.

### CASE CCXXI.

#### *Chorea cured by Sulphate of Zinc.*

MARY BARNES, aged 12, was admitted under my care, August 15th, with well-marked chorea, which had existed a fortnight.

Habeat Pulver. Scammon. cum Calom. gr. xij statim, et Repetatur alternis auroris.

Sumat Zinci Sulphatis gr. j ter die.

17th. Augeatur Zinci Sulphas ad gr. ij.

24th. Augeatur Zinci Sulphas ad gr. iij.

Sept. 11th. Repetatur Zinci Sulphas sexta quaque hora.

21st. Dismissed cured.

### CASE CCXXII.

*Chorea cured by Sulphate of Zinc.*

MATILDA YORK, aged 6, was admitted under my care, August 15th, 1827, with well-marked rather severe chorea.

Habeat Pulver. Scammon. cum Calom. gr. x statim.

Sumat Misturæ Ferri Compos. ʒjfs ter die.

20th. Balneum pluviale alternis diebus.

24th. Repetatur Mistura sexta quaque hora.

28th. Pulver. Rhei cum Calom. gr. xv statim.

Sept. 21st. These remedies, persisted in till this time, have produced very little improvement in the symptoms, which still continue to be very marked.

R Zinci Sulphatis gr. j.

Extracti Conii gr. j quater in die.

Repetatur Balneum pluviale.

25th. Augeatur Zinci Sulphas ad gr. ij; et Repetantur alia.

28th. Augeatur Zinci Sulphas ad gr. iij; et Repetantur alia.

Oct. 1st. Augeatur Zinci Sulphas ad gr. iv.

5th. No nausea from the pills. She has evidently improved much since taking the zinc.

Augeatur Zinci Sulphas ad gr. v.

8th. Improves rapidly.

12th. Augeatur Zinci Sulphas ad gr. vj.

26th. Almost perfectly steady.

29th. Augeatur Zinci Sulphas ad gr. vij.

Nov. 5th. Dismissed cured.

### CASE CCXXIII.

*Chorea cured by Cathartics, Tonics, and Shower-bath.*

CATHERINE MACARTHY, aged 13, was admitted, under my care, into Guy's Hospital, May 19th, 1830, the subject of decided chorea. She complained of much pain in the forehead; eyes inflamed: pulse 84, moderate strength: she also coughed, and had pain in the loins.



Habeat Pulv. Rhei cum Hydrarg. Submuriat. gr. xv.  
 Applicentur Hirudines viij statim temporibus.

20th. Repetatur Pulvis, et Habeat Haustum Sennæ vespere.

21st. Slept very badly; symptoms unchanged.

Applicentur Hirudines viij nuchæ.

Habeat Zinci Sulphatis gr. j ter die; et

Balneum pluviale alternis auroris.

24th. Augeatur Zinci Sulphas ad gr. ij. Repetatur Balneum; et

Habeat Pulv. Scammoneæ comp. gr. xx alternis auroris.

27th. Augeatur Zinci Sulphas ad gr. iij.

31st. She had a crying fit, not unlike Hysteria.

Sumat Zinci Sulphatis gr. iv quarta quaque hora; et

Pilul. Aloes cum Myrrh. gr. x omni nocte.

June 4th. Not the least progress has been made; but there is reason to believe that she very often spits out the pills, after the nurse leaves her believing them to be swallowed. The circulation in the extremities is very defective, and the hand always feels cold.

Habeat Misturæ Ferri comp. ℥ss secunda quaque hora.

7th. The chorea evidently increases; so much so, that she cannot be trusted out of bed, and is obliged to be protected from injuring herself: she articulates with great difficulty. Pulse feeble; extremities cold.

Habeat Misturæ Ferri comp. ℥j secunda quaque hora.

Repetantur Pilulæ Aloes cum Myrrh. omni nocte.

Middle diet, with three ounces of Port wine daily.

11th. Augeatur Mistura Ferri comp. ad ℥jss secunda quaque hora.

July 2nd. She improves obviously, and the circulation in the extremities is much more natural.

Habeat Misturæ Ferri comp. ℥ij secunda quaque hora; et

Balneum pluviale alternis auroris.

This was continued; and she left the Hospital by the end of the month quite cured.

## CASE CCXXIV.

*Chorea recurring three times, cured by Tonics.*

HENRY JOHN COOPER, a delicate child of 9 years of age, was admitted, under my care, with chorea, January 18th, 1828. The disease affected all his extremities, and produced a motion of the head, which was frequently protruded and drawn back; also constant motion of the lips, and considerable difficulty of speaking. These symptoms had now been coming on without any assignable cause for three weeks. He

had suffered a similar attack about a year before, when he was in St. Thomas's Hospital for a period of eighteen weeks.

In this case, after acting freely on the bowels, I occasionally had recourse to leeches to the temples and blisters to the nape of the neck, and the use of the shower-bath every other morning: but finding no amendment, I prescribed the sulphate of zinc, of which the doses were increased from a grain to seven grains without benefit: and as he was attacked with severe urticaria, it was necessary to suspend the remedy. It was afterwards again employed, and six leeches were applied to the nape of the neck eight or nine times on nearly successive days. The sulphate of zinc was regularly taken from the 26th of May to the 8th of September, and increased during that time to nineteen grains three times a day; this produced neither sickness nor any other inconvenience, nor did it seem to have any permanent good effect. The subcarbonate of iron was then had recourse to, at first in doses of ten grains, but increased within a month to five drams three times a day. This seemed to exert a good effect; and at length he was dismissed well, though the complaint appeared rather to have subsided gradually, than to have been decidedly influenced by the large doses of the remedies administered.

He remained well from October 1828 till July 1829, when he again came to the Hospital with a slight return; and it was now obvious that this relapse owed its origin to alarm; for, three nights before, his father had been seized with a fit, reported to be apoplectic, while the little boy was sleeping by his side; and from that time the chorea returned.

#### CASE CCXXV.

*Chorea, affecting more than one Member of a Family, cured by Sulphate of Zinc and Purging.*

ELIZABETH BOND, aged 11 years, was admitted under my care into Guy's Hospital, February 23rd, 1825, having been affected with chorea for five weeks. It appeared that in 1822, just before Christmas, she had suffered the first attack of this disease, which then lasted seven weeks; and that in 1823, about the same time of the year, she had been the subject of it for eight weeks;—and a cousin living at a distance, who had never seen this little girl, was now affected with the same complaint.

℞ Habeat Pilul. Aloes cum Myrrh. gr. x omni nocte.

Sumat Pilul. ex Zinci Sulphat. gr. j, et Extract. Gentianæ gr. iv ter die.

The sulphate of zinc was increased to three grains; the shower-bath was used twice in the week, and the bowels kept freely open. On the 28th of March she was dismissed cured.

#### CASE CCXXVI.

*Chorea, excited probably by the imitative tendency.*

APRIL 13th, 1829, a girl of slender make, presented herself for admission at Guy's Hospital: she had been for six months the subject of slight but well-marked chorea.

Neither she nor her friends could assign any cause for its coming on; but on my inquiry whether she knew any other person with this complaint, I found that a little girl at the same school was severely affected with a similar disease, which, as far as I could ascertain, had been upon her from infancy. In this case, it is not improbable that the disease was the result of unconscious imitation. The remedies adopted were as in the last case, and the result was, after some weeks, favourable; but I have not procured the particulars of the treatment.

### CASE CCXXVII.

*Chorea first excited by Alarm, and complicated with Hooping-cough.*

MARIA LEWIS, aged 7 years, was admitted October 12th, 1825, into the clinical ward. This was a case of chorea not very severe in its symptoms, but attacking very generally, affecting all the limbs, and the muscles of the face, so as to render her walk quite unsteady, and to prevent her from readily taking hold of any object, or answering questions without hesitation and delay. During the hours of sleep all her unnatural motions ceased. It was the second attack which this child had experienced: the first was at the age of 5 years, when a little girl under whose care she had been left, shut her up in a coal-hole, which alarmed her exceedingly, and two days afterwards the chorea began to show itself gradually. She was brought to Guy's Hospital, under my care, at that time, and dismissed cured.

In addition to the chorea, this child laboured under hooping-cough in a well-marked form: the bowels were confined, and it was reported that she had passed worms.

Our first attention in this case was necessarily called to the hooping-cough, for this was attended with considerable febrile excitement, the pulse ranging from 90 to 120, and the sleep disturbed.

Habeat Scammon. cum Cal. gr. xij statim; et repetatur vespere si opus fuerit.

This was to be repeated nearly each alternate morning; while saline mixture, with five drops of ipecacuanha wine, and half a dram of syrup of poppies, was given every six hours.

On the 18th, three leeches were applied to the forehead, but without any marked influence on the paroxysms.

On the 23rd, three drops of the tincture of digitalis were added to each dose of the mixture, and continued till the 25th. On the 24th, a Burgundy-pitch plaster was applied to the chest, and two grains of the extract of conium added to the mixture, the ipecacuanha wine being increased to ten drops. The purgative powders were regularly given.

By the 28th, the febrile affection and the active symptoms of the hooping-cough had so much subsided, that I determined on attending more to the chorea, which had undergone but little alteration since her admission.

R Zinci Sulphatis gr. j.

Extract. Gentianæ gr. ij, fiat Pilula ter die sumenda.

Adhibeatur Balneum pluviale bis in hebdomada.

Repetatur Pulvis cum Scammon. et Calom. alternis auroris.

31st. It was found almost impossible to make her swallow her pills; I therefore changed the medicine, and ordered her to take half an ounce of the compound steel mixture, three times a day. She continued the shower-bath and the purgatives.

Nov. 11th. The compound steel mixture was increased to one ounce thrice a day. The daily accounts were favourable. Still, however, on the 25th the report was, that she continued to have considerable unnatural agitation, though certainly improved since her admission; and accordingly I resolved to return to the sulphate of zinc, giving one grain of it in the form of a powder, three times a day. This was gradually increased a grain from time to time, so that on the 9th of December she was taking ten grains of the sulphate of zinc three times a day; still continuing the bath and purgative.

Her improvement was decided; and about the 12th of December she was dismissed cured.

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In this case, we see the modifications which become necessary when chorea is complicated with other diseases; and we likewise perceive in it the illustration of the fact, that the same person is very liable to a second attack; which was afterwards still further proved in the case of this child, for she had a third and a fourth attack in the course of the next three years; and after having been perfectly well for above two whole years, came again under my care, when she was nearly thirteen years of age; in which attack, as in most of the others, the first complaint had been of very violent pain in the head.

### CASE CCXXVIII.

#### *Chorea twice excited by alarm.*

MARTHA REID, aged 18 years, was admitted, under my care, December 15th, 1830, affected with chorea, confined almost entirely to the left side, and chiefly to the arm, the convulsive motions of which were quick and spasmodic. Pulse 90; bowels costive. It appears that four years before, she had suffered from the same complaint, excited by alarm, a young woman having dressed herself up in a sheet to frighten her. The alarm was excessive, but the chorea did not come on till three weeks after, when it was first observed slightly, following a severe fit of hysteric crying, and it increased gradually. It then lasted for six months, and she remained quite well till five months ago, when the present attack took place, in consequence, as it was believed, of another alarm

experienced by thieves breaking into the house. With regard to the catamenia, they first appeared when she was between fifteen and sixteen, which must have been a few months after she recovered from her first attack; and they have remained regular till about a month after the last fright, when they were interrupted.

### CASE CCXXIX.

*Chorea in consequence of Fright, cured by Purging, Shower-bath, and Tonics.*

MARY ANN SHUTE, aged 8 years, was admitted under my care, June 13th, 1827, affected with well-marked chorea, which had been coming on for four weeks, in consequence, as it was believed, of a fright from a horse. After the first week her symptoms became very severe, but rather subsided afterwards. The remedies used in this case were fifteen grains of the scammony and calomel powder every alternate morning, afterwards changed for the aloes and myrrh pill every other night; the shower-bath each alternate morning, and the sulphate of zinc gradually increased from one grain to five grains three times in the day. As she was getting better, I gave the compound steel mixture with two drams of the wine of aloes three times in the day. She was dismissed on the 16th of July.

### CASE CCXXX.

*Chorea traced to alarm, cured by Tonics and Purgatives.*

REBECCA TINDALL, aged 10 years, was admitted under my care, August 11th, 1830, affected with well-marked chorea; not in its most violent spasmodic form, but producing frequent unnatural movements, and a constant restraint in every action, together with much difficulty of utterance: this disease had come on rather gradually, but its commencement had been traced to a fright she had received, by finding that she was one morning too late at school, which at the time affected her very much. Her bowels were tumid. I gave her twelve grains of the scammony and calomel powder for three or four mornings in succession, and afterwards ten grains of the aloes and myrrh pill every night. On the 20th, she began with grain doses of the sulphate of zinc, which was gradually increased to six grains every sixth, and, for a short time, every third hour; but after this had been regularly continued till the 24th of September, the improvement, though obvious, was not so decided as might have been expected, and I put her on the use of the compound steel mixture; of this she took at first half an ounce, and afterwards a whole ounce, three, four, and five times a day. In a very few days the improvement was decided; but it was the end of October before every trace of the disease was lost. All this time attention was paid to the bowels, and the diet was rather generous than scanty.

## CASE CCXXXI.

*Chorea in its most severe form, cured by Tonics and generous Diet.*

CATHERINE LECORE, aged 16 years, was admitted into Guy's Hospital, August 12th, 1829, affected with well marked and rather severe symptoms of chorea, which had been observed about one month, but had latterly much increased. It was thought not improbable that a fright she had experienced had laid the foundation of the disease, but it had come on so gradually as to render this doubtful. She was a girl of slender form, but of healthy complexion, her bowels confined, and she had never menstruated.

Pilul. Colocynth. cum Hydrarg. Submur. gr. xv statim, et Haust. Sennæ post horas sex si opus fuerit.

Habeat Pil. Aloes cum Myrrh. ʒj alternis noctibus, et Zinci Sulphatis gr. ij ter quotidie.

15th. No improvement was observed, and the sulphate of zinc was to be repeated four times in the day: the aloes and myrrh continued.

20th. On this day she came under my more immediate care. The symptoms had considerably increased; she was entirely confined to bed, in a constant state of convulsive action during the day, throwing herself from one side of the bed to the other, unable to articulate, and swallowing with the greatest difficulty; her pulse was weak, but during the night she got several hours of calm sleep, in which she was quite free from the convulsions.

Sumat Zinci Sulphatis gr. v. sexta quaque hora.

Hydrarg. Submuriat. gr. v. hora somni. Olei Ricini ʒvj cras mane.

21st. Repetatur Hydrarg. Submuriat. hora somni, et perstet in usu Zinci Sulphatis.

22nd. The convulsive motions continue, and rather increase, although the bowels have been very completely opened.

Radatur caput, et applicetur Embrocatio communis.

Habeat Mistur. Ferri comp. ʒj secunda quaque hora.

25th. She is certainly improving, and is able to articulate a short connected sentence slowly but intelligibly.

Sumat Hydrarg. Submur. gr. v. hora somni.

Repetantur Medicamenta.

26th. There is great languor of circulation, the hands and feet cold and clammy and purplish coloured, and still the symptoms are severe. She has not slept so well the last night or two.

Extracti Hyoscyami gr. v. omni nocte.

Repetantur Medicamenta; et

Sumat quotidie vini rubri uncias sex.



Sept. 5th. Her progress has been uniformly favourable, but considerable symptoms of the disease still remain ; her diet has been improved.

Augeatur Mistura Ferri compos. ad ℥jfs.

12th. Fast improving, but the bowels do not act regularly.

Sumat Pulver. Rhei cum Hydrarg. Submur. ʒj bis in hebdomada.  
Repetantur Medicamenta.

29th. She was quite free from all symptoms, and was walking about the ward in a state of complete convalescence,

This young woman came under my care again about five months after, with a similar attack, which was cured in the same way.

### CASE CCXXXII.

*Severe Chorea ascribed to Fright, with Rheumatic Pains, cured by Chalybeates and Wine.*

MARY ANN EAGLE, aged 12, was admitted into Guy's Hospital December 25, 1829. This was one of the most severe attacks of this disease I have witnessed, and was said to owe its origin to fright. The commencement of the disease had been accompanied by pains in the knees and shoulders, which were considered as rheumatic. When first admitted, the muscles of her face were constantly drawn with spasmodic force, and her limbs were contorted with involuntary action. Tongue furred : pulse quick, but not distinctly to be felt on account of the constant motion : skin hot and dry : bowels costive : nights disturbed ; but when she fell into a sleep the involuntary motions ceased.

Habeat Pil. Aloes cum Myrrh. gr. x. omni nocte ; et

Extract. Gentianæ gr. iij, cum Zinci Sulph. gr. ij sexta quaque hora.

27th. The symptoms rapidly increased, and she was quite unable to swallow the pills.

Sumat Haustum Sennæ pro re nata ; et

Ferri Subcarbonatis ʒj sexta quaque hora.

Jan. 2nd. The symptoms have increased to such violence that she is almost worn out by the constant exertion. She is kept in bed by means of boards placed round her, but she cannot be prevented from striking her knuckles against them, so as to hurt herself very much. Tongue brown and dry ; lips chapped : she is quite unable to speak, and can scarcely protrude the tongue, except now and then by a hasty catching motion : bowels open.

Repetatur Ferri Subcarbonatis ʒj sexta quaque hora.

Habeat vini rubri ʒiv quotidie.

3rd. The wine appeared to have produced a most favourable effect; she was in every way greatly improved.

Habeat vini rubri ꝑviii quotidie.

Repetatur Ferri Subcarbonatis ꝑ quarta quaque hora.

9th. Able to answer questions distinctly: agitation of limbs very much subsided: tongue moist: bowels kept open by the senna draught.

From this time she went on regularly improving; frequently complaining of pains in the joints, but without swelling, and by the end of the month was completely well.

### CASE CCXXXIII.

*Chorea affecting one side, accompanied by Rheumatic Pains.*

JOHN DYER, aged 19, was admitted on the 11th of April, 1827, under my care, into Guy's Hospital, labouring under severe chorea, affecting the whole right side in a very urgent manner. He speaks with great difficulty, and has considerable fatuity in his appearance, and his arm and leg are in continual motion. It appears that three weeks ago he got wet through, by falling overboard into the river; this was followed in a day or two by severe pain in his right leg and arm, to which succeeded the present symptoms.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahantur sanguinis uncia quatuordecim statim.

Habeat Pulv. Scammon. cum Calomel. ꝑj statim.

12th. One stool only.

Repetatur Pulv. Scam. cum Calomel. statim, et mane quotidie.

14th. Bowels very freely open; denies having any pain, and his movements are diminished.

Habeat Misturæ Ferri compos. ꝑ quarta quaque hora.

15th. The movements are most decidedly increased, and he appears to suffer great inconvenience and irritation, complaining not only of weakness, but of pain in his right ankle and arm.

Radatur caput, et Applicetur Embrocatio communis.

Habeat Pil. Colocynth. cum Calomel. gr. xv. statim.

Repetatur Mistura Ferri.

16th. The symptoms much increased: he is unable to speak at all, and as he lies in bed throws himself about in violent convulsion, still bearing all the marked character of chorea.

Applicentur Hirudines xvj temporibus.

Repetantur Pilulæ Colocynthis cum Calomelane cras mane.  
Repetatur Mistura.

17th. The symptoms continue with undiminished force.

R Extracti Hyoscyami gr. v.

Camphoræ gr. iij; fiant Pilulæ quarta quaque hora sumendæ.

Habeat Infusum Rosæ cum Magnesiae Sulphate.

18th. Still greatly agitated, and unable to speak: bowels not freely open.

Repetantur Pilulæ.

Adhibeatur Balneum pluviale statim, et repetatur mane quotidie.

Olei Ricini ʒvj hora somni.

19th. Bowels not open: symptoms continue very alarming, from their severity, and are rather increasing.

Habeat Pilulæ Colocynthis cum Calomelane ʒj statim, et repetatur vesperi si opus fuerit.

Mist. Camphoræ ʒjss cum Tinct. Hyoscyami ʒj tertia quaque hora.

Repetantur Pilulæ Hyoscyami et Camphoræ.

20th. Bowels open: slight improvement: he is able to speak.

21st. Repetantur Pilulæ Colocynthis cum Calomelane.

23rd. Improved; but still much agitated.

Repetantur Pilulæ Colocynthis cum Calomelane gr. xx statim.

24th. Repetantur Pilulæ Colocynthis cum Calomelane gr. xx statim.

30th. Very decidedly improved. He continued the same treatment till the 14th of May, when all the urgent symptoms had subsided; and he was put for a few days on the use of the compound steel mixture, and was dismissed cured.

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In this case we have a very severe and 'acute form of chorea, brought on by exposure to cold, and attended with pains, which in some degree resembled those of rheumatism. I expected that after the employment of cupping and purging I might with advantage have had recourse to tonics; but this was not the case,—the symptoms evidently increased under the use of the compound steel mixture; and by purging, the shower-bath, and the liberal use of the camphor and hyoscyamus, the urgent symptoms were subdued.

## CASE CCXXXIV.

*Chorea and Rheumatism.*

JOHN GUMMER, aged 16, was admitted under my care October 24th, 1827. He was a boy of delicate appearance, and had been a waiter at an inn. A fortnight and five days previously, after having been exposed to cold and wet for some hours, he had been attacked with rheumatic pains in the limbs, first affecting the left leg and foot. He had since experienced wandering pains in the limbs and the back, and it appeared by his account that for the last few days he had been quite confined to his bed, and had been supplied with a considerable quantity of wine and water. His bowels had been costive during the whole illness, except when relaxed by medicine. Seven days before his admission he was attacked with symptoms of chorea, commencing with unnatural action of the face and mouth. At the time of his admission, he had great vacancy of countenance, and the peculiar spasmodic actions which attend chorea affected the muscles of the mouth; he had some difficulty of deglutition, and inability to thrust out the tongue till after repeated attempts, and the peculiar quick convulsive mode of withdrawing it which is observed in chorea. He had no headache, but rolled his head from side to side, and his eyes were in constant motion. There was also a convulsive twitch of the muscles of the arms, particularly the right. These symptoms of chorea were accompanied by very decided signs of rheumatism; his right wrist was swollen and very tender, and had a slight well marked blush of inflammation. The left wrist was also swollen; and he said that it had been the day before as much inflamed and as painful as the right was at the time of admission. The rheumatic pain was so severe as to disturb his night's rest. Pulse 90, sharp: skin hot: tongue tolerably clean, but appears to have been bitten.

Radatur caput, et Applicetur Embrocatio communis.

Applicentur Hirudines xij temporibus.

Habeat Pilulæ Colocynthidis cum Calomelane gr. xv statim; et

Misturam Magnesiae cum Magnes. Sulphate. (Low diet.)

25th. Passed a sleepless night, talking incoherently; says he felt relief from the leeches. The left hand and wrist are tender and swollen, and he complains of pain in the right groin. Has imperfect control over the muscles of his face and mouth, and says that swallowing is attended by a sense of roughness in the throat: a full inspiration produces slight spasm of the diaphragm. Three dark-coloured dejections: the head is hotter than natural.

Habeat Misturam Magnesiae cum Vini Colchici  $\text{mxx}$  ter die.

26th. He was delirious during the whole of the night. The left hand nearly free from rheumatism, but the right is to-day more painful. The right knee is also enlarged, hot, and painful. Pulse 82, full and hard.—The spasmodic action is increased:

he is talking incoherently: is unable to protrude his tongue. One dark-coloured dejection: passes his urine in the bed.

Habeat Hydrarg. Submur. gr. iv statim; et Haustum Sennæ postea ad alvi solutionem.

Extracti Hyoscyami gr. iij hora somni.

27th. He has passed a better night, sleeping occasionally, and is more quiet to-day. It was observed yesterday evening that he suffered from spasmodic action of the limbs and mouth, while he was apparently asleep. More rheumatism in the left hand: considerable heat of skin: the sternal articulation of the left clavicle is swollen and tender. Pulse 66, not so hard. Several motions, the last very loose.

Habeat Extracti Hyoscyami gr. iij ter die.

28th. He got out of bed twice in the night, in a state of delirium; but on the whole passed a better night, and is certainly better and more tranquil this morning. The convulsive motions of the face and hands have almost ceased, and he is able to answer questions much more coherently, and to put out his tongue. Both hands are painful, though neither is so much swollen as yesterday. Four dejections: pulse 75, rather sharp.

Repetantur Medicamenta.

29th. Slept well during the night: pulse 68, softer: puts out his tongue without difficulty: speaks with much less hesitation: free from spasmodic action of the muscles, but the abdominal muscles are rigid: bowels open four times: he is more free from rheumatism generally.

Repetantur Medicamenta.

30th. Abdomen less rigid: free from rheumatism: aspect much improved. He says his appetite is returned; feels stronger and sleeps well, but complains of a pain far back in the right iliac region. Pulse 80, rather sharp. Six or seven loose dejections.

Repetantur Medicamenta.

31st. Complains much of acute pain in the right side, below the edge of the ribs. Pulse 90, jerking. Three rather light-coloured dejections. The chorea has almost entirely subsided.

Applicentur Cucurbit. cruentæ lateri dolenti, et detrahantur sanguinis 3x.

Repetantur Extracti Hyoscyami gr. iij ter die; et adde Hydrargyri Submuriatis gr. fs.

Nov. 1. Pain much relieved by cupping, but there is still some tenderness. Pulse 90, sharp. One pale dejection: urine natural, and very copious.

Foveatur Abdomen.

Repetantur Medicamenta.

2nd. Free from pain : pulse 88, softer. Two evacuations of a greenish colour. The mouth feels a little tender.

Habeat Misturæ Ferri comp.  $\mathfrak{z}$ ss ter die ; et  
Extracti Hyoscyami gr. iij, Calom. gr. fs omni nocte.

3rd. Pulse 108, sharp : skin warm : slight rheumatism in fore finger of right hand. Bowels open once.

Repetantur Medicamenta.

4th. Right hand better : slight pain in the shoulder of the same side : pulse 84, not so sharp : bowels open.

Repetantur Medicamenta.

5th. Two dejections : tongue clean : pulse 98 : shoulder and hand better.

Repetantur Medicamenta.

To have a mutton-chop for dinner.

6th. Bowels once open : slight tendency to involuntary action of the muscles.

Adde Decoct. Aloes comp.  $\mathfrak{z}$ ss sing. dos. Misturæ.

Repetatur Pilula hora somni.

7th, & 8th. There is still tendency to spasm of the muscles, but for the last two or three days he has been alarmed by some of the patients in the ward.

9th. Several feculent dejections.

11th. Weight at the stomach for an hour after taking food : bowels not open since last night : some tenderness of the knuckle of the fore finger of the left hand, and of the right shoulder.

Sumat Olei Ricini  $\mathfrak{z}$ ss statim, et Repetantur Medicamenta.

12th. Still a little pain in the hand and shoulder : bowels well opened : some tendency to irregular muscular action.

13th. Pain in knuckles of each fore finger at the metacarpal joint. Three feculent dejections.

Habeat Zinci Sulph. gr. j ter die ; et

Haustum Sennæ omni nocte si opus fuerit.

The sulphate of zinc was gradually increased to five grains three times a day, which quantity he continued till the 4th of December ; and afterwards, on account of some nervous feeling in his throat, he took some compound galbanum pill, with camphor mixture, till the 11th, when he was dismissed cured.

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This is a very well marked case of the curious, but not rare, combination of rheumatism and chorea : the rheumatism in this, as in the following cases, formed the first feature of the disease, and it seemed necessary to



combat its symptoms by such remedies as were calculated to reduce inflammatory action; but as the rheumatic disease diminished, tonics became useful, and ultimately productive of a cure.

### CASE CCXXXV.

#### *Chorea following acute Rheumatism, treated with Sulphate of Zinc.*

WILLIAM MULLENS, aged 16, was admitted under my care May the 19th, 1830, being at that time the subject of well-marked chorea, which altogether prevented his articulation; and when desired to put out his tongue, it was with difficulty, and after much apparent preparation, that he was able to do so. The limbs were also frequently moved involuntarily, but by no means in a violent manner: when asked if he suffered any pain, he put his hand with difficulty to his neck. Pulse 96; tongue slightly furred; bowels open. We learnt from his mother, that seven weeks previously he had been laid up with acute rheumatism, his feet, ankles, and knees being all greatly swollen; and about a fortnight ago, when the rheumatism was going off, the symptoms of chorea were first perceived.—I ordered his head to be shaved, and a cold embrocation to be applied, eight ounces of blood to be taken by cupping from the neck, and a purgative of five grains of the hydrarg. cum creta, followed by castor oil, to be administered.

On the following day the symptoms had somewhat changed; the articulation was intelligible, but the motion of the limbs was more marked. I now began with two grains of the sulphate of zinc three times a day, and a scruple of compound scammony powder every other morning, if necessary. The sulphate of zinc was increased gradually, so that on the 31st he took seven grains at a dose: and now the shower-bath was ordered on the mornings when the purgative was not taken.

June 4th. The zinc, which had been increased to eight grains, was ordered every four hours; and the remedy thus frequently administered, was increased before the 13th of June to thirteen grains, which dose was regularly continued every fourth hour in the shape of pills till the 5th of July, when he was quite well, and left the Hospital.

In this case, the rheumatic symptoms had subsided before the patient came under my care, and the tonic treatment was begun almost immediately, nor was it necessary at any time to intermit its employment.

### CASE CCXXXVI.

#### *Chorea with Amenorrhœa, Rheumatism, and Roseola annulata.*

A YOUNG woman, aged 16 years, in whom the catamenia had never appeared, was put under my care in the month of June. She had been about a fortnight ill with a

rash, which came out in circular patches of the size of a sixpenny-piece, several coalescing, then going off, and so in succession: swellings also of a puffy character had taken place in her wrists and joints; and some wandering pains, sore throat, and febrile action had existed, with pain in the side,—leading to a belief that the pleura was inflamed. For the eruption she had tried sarsaparilla, and on two occasions had been bled. During about four days before I saw her, it had been observed that she had unnatural motions of the mouth and lips, which were ascribed to trick; but on that day the motions of the hands and head had become unequivocal, and leeches had been ordered to her temples.—When I saw her first, she was lying in her bed in a state of general convulsion, more particularly of the left side, so that it was necessary for the nurses to hold her, or at least to protect her hands as she threw them about; the legs were also convulsed; the face was drawn as in confirmed chorea: the pulse was 130; skin dry and harsh; and there were many spots of *Roseola annulata*, but much less distinct than I was informed they had been,—they were principally on her arms; the left wrist was swollen. She was a good deal exhausted, apparently by the bleeding of the leeches and want of rest.

We ordered the head to be shaved, a cold embrocation to be applied, and the feet to be kept warm: gave a grain of opium with some extract of colocynth; and ordered some scammony and calomel the next morning. She had very little rest in the night, and the symptoms remained much the same on the following day.

We continued the same treatment, attending to the state of the bowels, occasionally giving three grains of calomel with colocynth or castor oil, and at the same time opium at night for three or four days; and gradually the chorea a good deal subsided. The eruption then appeared rather more; and we had reason for alarm from the nates becoming sore by rubbing in bed: but these parts were guarded by a soft plaster. Soon after, the dyspnœa became somewhat alarming; the respiration from 30 to 40, and the pulse never below 120: and there was occasional cough, with bloody expectoration, which we always suspected might come from the nose, as epistaxis had occurred several times. The tongue, which was at first thickly loaded, became about this time decidedly aphthous; and there was occasional delirium at night, and incoherent conversation in the day.—We applied a blister to the chest, and gave conium and ipecacuanha, watching most carefully the frequent changes by seeing her twice a day. At length,—the cough having subsided; the dyspnœa being decidedly only occasional; the irregular motions still perceived at times in the hands, and a peculiar vacancy in the mind; the urine very scanty, sometimes not above four ounces in thirty-six hours; and the skin, which had been singularly dry, having been brought to some state of perspiration by ipecacuanha and other diaphoretics, and by fomentation to the bowels,—we began very cautiously with half an ounce of the compound steel mixture and an ounce of the compound decoction of aloes, three times a day.

July 22nd. She has been gradually and almost imperceptibly improving. For the

last week the urine has been rather more abundant, and the skin has been more constantly natural, with scarcely a sign of the eruption: the greatest improvement appears to have taken place since about ten days, when we allowed a little solid food. For the last six days she has got from her bed; first, for a quarter of an hour twice a day; then for twenty minutes; three times; then for an hour, three times. The extreme sluggishness of mind and want of recollection has been of late very remarkable, but it is going off: her manner, which was at one time most singularly hurried, and since as remarkably inert, has never been natural since I saw her. No appearance of catamenia.

R Misturæ Ferri comp. ℥j.

Decoct. Aloes comp. ℥ss.

Spir. Æth. Nitr. ℥ss.

Tinct. Scillæ ʒ xv. M.

Fiat Haustus ter die sumendus.

R Potassæ Acetatis ʒj.

Pulveris Jalapæ gr. v ad gr. x.

Syrupi simplicis ʒj.

Aquæ Menthæ sativæ ʒx. M.

Fiat Haustus omni nocte sumendus.

July 27th. Improves daily; was sitting up seven hours yesterday, and dined with the family. She afterwards went to the sea-side; the catamenia came on, and she was restored to perfect health: but a year or two after she had, connected with a very similar rheumatic attack without the chorea, an inflammatory affection of the pericardium, which required bleeding and calomel, and she was many weeks confined.

## CASE CCXXXVII.

*Chorea connected with irregular Menstruation, cured by Tonics.*

RUTH GRENIER, aged 15, was admitted under my care April 23rd, 1828, affected with chorea. About three months ago, when the catamenia first appeared, she complained of numbness of the right arm and irregular motion of the fingers of the right hand, and this had continued to increase: it was well marked, but by no means severe. The catamenia, after passing over one period, had returned a month ago slightly: the bowels tolerably regular.

Habeat Pilulæ Aloes cum Myrrh. gr. xv alternis noctibus.

Mist. Ferri compos. ℥ss sexta quaque hora.

24th. Only one dejection.

Repetantur Pilulæ omni nocte.

Repetatur Mistura.

25th. Adhibeatur Balneum pluviale alternis auroris.

Repetantur medicamenta.

28th. The catamenia appeared yesterday, which was the regular time, and continue to day.

Omittantur Medicamenta et Balneum.

May 2nd. Catamenia ceased on the following day, but have returned this morning.

5th. Repetantur Medicamenta ut antea.

9th. She complains of a little sickness at the stomach.

12th. The chorea remains very nearly in the state in which it was at her first admission.

Repetatur Mistura Ferri comp. quarta quaque hora.

Habeat Pilulæ Aloes cum Myrrh. gr. v omni nocte; et

Haustum Sennæ mane si opus fuerit.

14th. Some headache and sickness.

Applicentur Hirudines xij temporibus.

Habeat Infusum Rosæ cum Magnes. Sulph.

19th. Habeat Zinci Sulphatis gr. j ter die. Haustus Sennæ mane quotidie.

The sulphate of zinc was gradually increased to seven grains, and continued till the 23rd of June, when he was dismissed cured.

## CASE CCXXXVIII.

*Chorea chiefly on the right Side, with Amenorrhæa.*

MARY JACOBS, aged 19, was admitted into Guy's Hospital, under Dr. Cholmeley, January 7th, 1829, affected with well marked chorea, chiefly confined to the right side. It appeared that she had never enjoyed strong health, and had never menstruated. About three months before, without any particular cause, she was first affected with coldness, loss of power, and involuntary action of the muscles of the right side; she had aching pain in the joints, and her bowels were costive. A difficulty of deglutition, under which she had laboured, was now relieved.

This young woman stated that she had a cousin 19 years of age, who had an attack of chorea brought on by a fright, and who, after obtaining no relief in an Hospital for nine weeks, became afterwards quite well by country air and exercise.

In this case, the disease attacked one side much more than the other: which is very frequently the case; and sometimes the loss of power has been such as to imitate hemiplegia. I have seen two cases of this kind so marked, that in one of them the disease was actually mistaken for hemiplegia at the first visit.

## CASE CCXXXIX.

*Chorea, fatal; the Uterus much diseased.*

SARAH FORD, aged 13, was admitted under my care into Guy's Hospital, January 24th, 1825, most severely affected with chorea. The usual convulsive actions and the catching of the muscles affected the face and the upper extremities more than the lower; and she was so agitated by the disease as to be unable to sit up. She was an unusually fine robust girl, and had a small bronchocele since she was quite a child.

It appeared on inquiry, that in July last she had an attack of rheumatism, but from this she completely recovered; and about five weeks before her admission she had an ulcerated sore throat, attended with headache and globus hystericus; and though she was rational in conversation, she laboured at times under delusions of mind, which used to come on particularly at night. As these symptoms disappeared, the convulsive actions of the muscles, which had been before scarcely perceived, became obvious, and her spirits and strength were greatly depressed. Her bowels were habitually constipated; appetite good, but not voracious. Pulse 120; tongue whitish. The catamenia had not yet appeared.

Applicetur Emplastrum Cantharidis nuchæ.

Habeat Pulveris Rhei cum Calomelane gr. xv statim.

Misturæ Ferri compos. 3fs quarta quaque hora.

Jan. 29th. Her nights are improved; she gets several hours of quiet rest. Her articulation is better, but she sees objects double; she denies any pain. Pulse 120, weak: circulation languid in the extremities. Three stools, coloured by the mixture.

Repetatur Mistura.

Sumat Pilul. Aloes cum Myrrh. gr. x omni nocte.

Habeat Extracti Hyoscyami gr. iij, Camphoræ gr. iij, ter die.

She is to have her diet improved; a mutton chop and arrow-root, and two ounces of wine.

The chalybeate mixture was afterwards increased to an ounce every four hours; the camphor and hyoscyamus were administered every four hours, and a constant action kept up in the bowels: she made, however, very little permanent progress, although she occasionally improved.

Feb. 15th. Sleeps for several hours in the night: complains of giddiness in the head, and tightness across the stomach. She is sitting up, but is very much agitated.

Sumat Pil. Colocynth. cum Calomel. gr. xv statim.

R Zinci Sulphatis gr. j,

Extract. Gentianæ gr. j.

Fiat Pilula sexta quaque hora sumenda.

16th. Has passed a very bad night, crying and making a noise continually, and is much more agitated.

Radatur Caput, et Applicetur Embrocatio communis.

17th. More tranquil night. Pulse frequent, and weak: skin soft: is perfectly sensible; answers questions with much difficulty, but lies more quiet.

Capiat Pil. Galban. comp. gr. v, cum Extracti Rhei gr. v bis die.

Augeatur Zinci Sulphas ad gr. ij ter die.

Habeat Vini rubri  $\mathfrak{z}$ iv quotidie.

28th. She was ordered to use the shower-bath; but it was found impossible, on account of the violence of the convulsions; and it was necessary to put her into a large tub, and throw the water over her. The effect was exceedingly good; she became tranquil when taken to her bed, and fell into a quiet sleep for some hours.

From this time the zinc was gradually increased to ten grains for a dose; the cold affusion and afterwards the shower-bath was employed every other day: various purgatives were used, amongst which were castor oil, senna, scammony, calomel, and turpentine injections: sinapisms were also applied to her feet.

April 7th. Has been improving daily: sits up all day; walks about, and talks with ease, though she has still some little irregular action.

I believe the sulphate of zinc was afterwards increased a few grains more, and she left the Hospital well.

This young woman remained quite well for many months, when from some agitation of mind she had a relapse, from which she recovered, and had since enjoyed good health and spirits, and had formed an attachment for a young man, to whom she supposed herself engaged; but about Easter 1829, he suddenly left her, and she immediately became the subject of a renewed attack of her disease.—She was brought to Guy's, being now seventeen years of age. It was with difficulty she could either stand or sit: she threw herself about in every direction, contracting her mouth forcibly, speaking with the utmost difficulty; and when desired to show her tongue, protruding it most forcibly, and shutting her teeth upon it.

What mode of treatment was adopted I do not know. She seemed, however, to improve under it at first, but then became worse, and at length could not be taken from her bed: she threw herself in all directions, beating her hands against the boards, which were put to prevent her falling on the ground; and she bit her tongue most dreadfully. She gradually became very low and exhausted; her mouth and teeth covered with sordes; and she had nearly the aspect of a person labouring under fever. She seemed sensible, though, from the difficulty of answering questions, she sometimes appeared incoherent.—All these unfavourable symptoms increasing, she gradually sunk.

#### SECTIO CADAVERIS.

When the dura mater came into sight, it was obvious that no effusion



had taken place into the ventricles, as the convolutions were felt distinctly, and seen through the membrane. The skull was thin, and the sella turcica and other projections of the basis were rather prominent. A small quantity of fluid escaped from a wound made by the saw through the dura mater into the arachnoid; the effusion, however, was but little: the membranes looked moist, and between the convolutions slightly watery. There was not the least coagulum in the longitudinal sinus nor in the lateral sinuses, and only a few drops of uncoagulated blood.

The surface of the convolutions was rather more vascular than usual, as were the processes of the pia mater, which descended between them; but the large veins going into the sinus were empty on both sides. The appearance called the *centrum ovale* was decidedly more dotted with dark points than usual, and they were more permanent, being very evident depressions or holes, the open orifices of vessels; and in many places, the knife which made the cut, left behind it the vessels drawn from their situations like bloody streaks. It was also observable, that on the surface of the cineritious matter, when the pia mater was drawn off, the depressions formed by the vessels entering from the pia mater were unusually obvious.

The lateral, as well as all the smaller, ventricles, were remarkably free from effusion, scarcely a drop of fluid being found in any of them. The plexus choroides, and more particularly the *velum interpositum*, turgid with blood; the vessels running over the *corpora striata* and the *thalami* were full and large. The other parts of the cerebrum and cerebellum were perfectly healthy.

The spinal cord was most carefully exposed from behind, so that a complete view was obtained of the brain and it, in connection with each other. The dura matral covering or theca was healthy. The theca was then opened along the back part; a small quantity of fluid escaped, and rather more vascularity than natural was observed. Almost half-way down, and from that point to the *cauda equina*, were seen five or six bony plates, not above the tenth of an inch in diameter, attached to the pia mater by small peduncles, and distended like little fungi, with their tops nearly smooth. The whole pia mater was rather vascular, but nothing like inflammatory appearance or softening could be discovered. The *corpora pyramidalia* and *olivaria*, and the upper six inches of the spine, were most carefully examined at the time; the lower part of the spine was opened thirty-six hours after, (having been kept to be drawn,)

at which time it had probably become in some degree softened : however, the most careful examination, by cutting into both the columns, gave no indication of disease ; but at one spot, not larger than a grain of barley, some faint vascular redness was perceived.

The lungs and heart healthy ; but the heart contained very little coagulated blood, and, together with the aorta and valves, was much stained. The liver healthy, though rather large. Stomach and intestines, spleen, pancreas, and mesenteric glands, all natural. We endeavoured to trace the ganglia of the great sympathetic in the cardiac plexus, but could discover no particular diseased appearance. The kidneys were whitish, mottled, and rather large in size. I should suspect the urine was coagulable, but there was none in the bladder on which to make the experiment.

The uterus was rather large, and its cavity was extensive : in the left cornu was a deposit of about as much clear transparent mucus as would cover a sixpenny-piece. The ovary on the right side contained a cyst of the size of a small hazle-nut, full of a tenacious dull-red substance, of just sufficient consistence to allow of being cut : the Fallopian tube on the same side was quite pervious, admitting of the passage of air from the blow-pipe, but it presented a remarkable appearance, having the points of the fimbriated extremities tipped with deposits of semitransparent bone, looking like large grains of sand, of irregular and rather botryoidal form ; and a deposit of the same kind was found on the outside of the broad ligament. The ovary on the opposite side was more healthy, having in it a few vesicular bodies. The Fallopian tube on that side had none of the bony deposits. Attached to the ligaments of the uterus, on each side, was a small vesicle of the size of a pea, hanging by a peduncle, along which vessels were seen to pass. (Plate XXXVIII. Fig. 3. & 4.)

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In this case, it is possible that the condition of the uterus and its appendages furnished a constant source of irritation, easily acted upon by circumstances ; and the appearances of the brain marked congestion in the minute vessels of the medullary matter, which had probably become somewhat enlarged and thickened in their structure, by being frequently gorged with blood. The little bony plates formed upon the spinal cord are by no means unfrequent, and may not improbably mark a susceptibility to irritation, or may be a source of irritation. On the appendages of the uterus not less than three distinct diseases were observed :—the collection

of dark bloody matter in the ovary, which is not uncommon, and appears to be the result of uterine irritation; the vascular vesicles external to the Fallopian tubes, which I have seen in some cases of the size of a small egg; and the bony deposits upon the fimbriated extremity of the tube. This last appearance I do not remember to have seen before, though not unfrequently small cartilaginous bodies are found attached to the broad ligaments and other parts of the uterus.

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In reviewing the cases of Chorea which have now been related, we find one only which has proved fatal; and in that, the most unequivocal evidence of extreme uterine irritation was found after death. Of the other five cases which I have known to terminate unfavourably,—one was a woman in the Manchester Infirmary, about four months advanced in pregnancy; and two others were in Guy's Hospital, under the care of Dr. Curry and Dr. Marcet; both plethoric young women, at that age when uterine irritation is most likely to exist. We also observe, by attention to the foregoing cases, that a great number were connected with irregularity in the menstrual discharge, or with amenorrhœa; thus, it becomes probable that the uterus is in a great many cases the source of that general irritation which so strongly marks chorea: still, however, there are many other causes capable of exciting this morbid action in the nerves, if the patient is at all predisposed. We observe a very considerable number of cases arising from sudden fright, and in children, before the uterus or the changes connected with puberty could be supposed to exert their influence. We also see that rheumatism is so intimately connected with chorea, that in some cases it seems to have been an exciting cause, at other times to be but a concomitant, marking in both instances a peculiar connection between that disease and the morbid condition of the nervous system. We have traced a similar connection between rheumatism and many paralytic affections, when it might be ascribed to the state of congestion, or to the slight changes consequent on inflammatory action, taking place in the membranous textures entering into the composition of nerves; and it is not impossible that the same rheumatic action, influencing the membranes in some slighter degree, or modified by the irritability of the subject, may occasionally prove the cause of chorea. I have also known a direct injury of the head from a blow, in one instance, the exciting cause of chorea. I have never actually traced this disease to the irritation

of teething; but I have so frequently seen it come on at the period of the second dentition, that there appears a strong probability that it exerts its influence, either as an exciting cause or as a source of predisposition. The solitary case of this disease which I have had an opportunity of examining after death, cannot of course be adduced with any confidence as throwing light on its pathology: but as far as we can infer anything, we should say, that there was some peculiarity in the original condition of the membranes shown by the small bony deposits upon the spinal arachnoid, which might render the nervous system generally more irritable than natural; but that there was a great source of irritation in the uterus, and that the only evidence of disease in the brain itself, or the spinal cord, was some very slight vascularity of the arachnoid, and considerable congestion in the smaller vessels of the brain, and more particularly of its medullary parts. Whether much of this, however, was to be looked upon as the consequence of disease, is more than questionable, as the feeble and prostrated state to which the patient was reduced, and the frequent use of narcotics, were well calculated to produce appearances of congestion.

When we consider the remedies which have been generally successful in chorea, some analogy may be traced, by their means, between this and other diseases of the nervous system, marked by great irritability, and requiring a similar treatment. Thus I am induced to point out a connection in this respect between chorea, hysteria, and the delirium of drunkards: and it appears to me not improbable, that as in each of them great irritability exists, and in each, direct depletion is generally less beneficial than a due attention to the establishing of the natural evacuations, and the employment of tonics, and even of stimulants,—so there may be some great features in common between these diseases; and that perhaps the great and palpable difference which is observable in them may depend on the inflammatory excitement which accompanies the delirium of drunkards, and on the portion of the nervous system which is the chief seat of irritation. Thus in chorea, that part of the nervous system which ministers to voluntary motion is chiefly affected; while in hysteria, the nerves on which organic life and involuntary motions depend are principally irritated; and in the delirium which takes place in drunkards, those portions of the brain which are particularly associated with the manifestations of thought and reason are labouring under disease.

## PALSY FROM MERCURY.

This very peculiar disease has been long known to attack those whose occupations expose them to the continued influence of mercury. Thus the labourers in the quicksilver mines, those who are employed in silvering mirrors, and in gilding silver by means of amalgam, button gilders, and the workmen in some chemical manufactories where preparations of mercury are made,—are all frequently affected with this disease. In many of the situations and employments in which it arises, the mercury is presented in the form of fumes or vapour, and therefore probably comes in contact with the the air-passages in the act of respiration. But this does not appear to be absolutely necessary; for in one of the best marked instances I have ever seen, and which I shall immediately relate, this was not the case; but there the atmosphere appeared to be impregnated with the particles of the metal oxidized by trituration.—Mercury, even administered internally, is known to produce great irritability of the system: but its most deleterious effects are observed to occur in the large venereal wards of Hospitals, where the remedy has been applied by friction; when it shows itself in that exquisite form of mercurial erethism, first recognised, and so well described by the late Mr. John Pearson, as occurring in the Lock Hospital.

## CASE CCXL.

*Palsy from Mercury, in consequence of Exposure to Mercurial Fumes.*

AN Irishman came under my care,—who stated that for the last fifteen years he had been working at the cinnabar manufactory at Homerton, in which it is a part of the manipulation to mix together crude mercury with boiling sulphur while on the fire, and afterwards to expose the mixture to intense heat. The former part of the operation, called the killing, he stated to be that which is considered most deleterious: in this he had been but little occupied, till the last year and a half; and he said that he had altogether manufactured forty-four thousand weight of the material. It was shortly after he began to increase the extent of his occupation that his health suffered; so that it was not above eighteen months back that he dated the commencement of his complaints. The symptoms which he first experienced were unusual nervousness and trembling of the hands, as well as tremor when standing; and this rapidly increased, so that he was unable to feed himself: his bowels were not unusually costive, nor had he any difficulty either in retaining or expelling his urine or fæces. He had entirely left his employment, but had occasionally looked in, as he lived very near the

factory. At the time I first saw him, he stated that he was infinitely more steady than he had been a few months before, but still he had tremor of every part, and difficulty of speaking; and the more he was questioned about his ailments, the more agitated he became, till he was quite unable to stand, to assist himself, or to speak: his countenance was sallow, and he said that of late he had suffered a great deal from headache.

The remedies which I ordered him were, balsamic preparations and laxatives, with a strict injunction that he should absent himself entirely from the manufactory in which he had been employed. As I saw this man only casually, (when doing duty for my colleague amongst the out-patients,) I do not know what was the result: but judging from the slow progress which he stated he had previously made, there is little doubt that it would require many months of care and relaxation before his health could be restored.

### CASE CCXLI. & CCXLII.

*Palsy from Mercury, caused by Exposure to the fine Particles of triturated Mercury;—fatal in one Case; cured in the other by Change of Atmosphere, Laxatives, and Tonics.*

IN the year 1822, when I was Assistant Physician to Guy's Hospital, a man and his wife applied for advice, who were the subjects of the most confirmed attacks of this disease. They were sallow, emaciated, and enfeebled; their gums were ulcerated, and their teeth loose from a long-continued slight degree of salivation; they were unable to stand steadily, and could scarcely speak intelligibly, from the constant state of agitation into which they were thrown the moment they were addressed, or attempted to articulate: on the least emotion of mind, all their symptoms were greatly increased; and as soon as they were desired to do anything with their hands, it was evident that they had no power of directing them with decision to the performance of voluntary motion: thus, instead of taking hold of a book or paper presented to them, they caught at it with sudden spasmodic jerks; and when at last the paper was seized, it was crumpled in the hand. They were too enfeebled to attend regularly as out-patients; and as they refused to leave their habitation and their occupation, and come into the Hospital, I attended them several times at home. When I visited them, I found them living in a single room, which served them as sleeping apartment and as workshop; the woman was confined to her bed, but the man still continued his occupation. They were in the habit of procuring the leathern bags in which quicksilver had been imported, and by means of pressure, made partly by a vice and partly by drawing the leather under a kind of broad wooden knife, they extracted the quicksilver which had concealed itself in the pores of the leather, and by the sale of this they procured their livelihood; all the implements, the tables, and the man's hands were discoloured by the particles of the metallic oxide, and the air of the room was close and unwholesome. Of course no remedies could be of any avail while they persisted in breathing this



polluted atmosphere ; and the woman having lost most of her teeth, at length died, worn out by the irritation. The husband then consented to come into the Hospital ; and as I was acting for my valued friend Dr. Laird, at that time confined by illness, he came under my care. The total change of air, and great attention to the state of the bowels, did much towards his restoration ; he afterwards took tonic remedies, and ammonia and other stimulants, and left the house cured.—Three years afterwards I met him in the street, full of health and gratitude : he said that on leaving the Hospital, he had not returned to his former occupation, but had gone into the country, where he was pursuing a life of agricultural labour, and now felt nothing of his former ailment : his want of teeth was the only mark which remained.

### CASE CCXLIII.

*Palsy from Mercury, caused by exposure as a Water-gilder, cured by Sulphate of Zinc.*

WILLIAM WICKART, aged 31, was admitted under my care, October 8th, 1828. He confessed that he had been a good deal addicted to drinking. For the last sixteen or seventeen years he had been employed in water-gilding,—a process which consists in gilding by means of an amalgam of gold ;—and about eight years before, he suffered a slight attack of the disease he now laboured under. For the last ten months he had been very much occupied in his employment, having had a large quantity of the King's plate to re-gild : for the last two or three months his gums had been much affected by the mercury ; he had experienced a good deal of pain in the forehead, and irregular spasmodic action had been coming on and gradually increasing. The disease was in a very well marked form, affecting more particularly his hands, which were in almost constant motion : the left was most convulsed, and the moment he was spoken to, the convulsive action increased. If he attempted to make any voluntary exertion, as taking hold of anything, the hand was thrown in every direction, with short but violent convulsive catches. When lying quite undisturbed, the motion was often for a time suspended ; he had also a hurried, convulsive and indistinct mode of articulation.

Habeat Olei Ricini ℥ss cum Tinct. Opii ℥v statim, et repetatur ad alvi solutionem.

9th. Six or seven stools : convulsive actions as before : pulse 96, weak.

Habeat Julepi Ammoniaë Subcarbonatis ℥jss quarta quaque hora. (Low diet and beef tea.)

10th. Sumat Zinci Sulphatis gr. j ter die.

Repetatur Mistura.

13th. Complains of a burning sensation in the hand most affected, and some pain in the head, with giddiness. One stool each day.

Augeatur Zinci Sulphas ad gr. ij.  
 Repetatur Julepum Ammoniae.  
 Sumat Pulveris Jalapae comp. ʒfs cras mane.

17th. Augeatur Zinci Sulphas ad gr. iij.  
 Habeat Olei Ricini ʒfs cras mane.  
 Repetatur Mistura.

20th. Tongue clean : pulse 72, weak : bowels free.

Augeatur Zinci Sulphas ad gr. iv, et adde Extracti Hyoscyami gr. iij ter die.  
 Repetatur Mistura. (Middle diet.)

24th. The spasmodic actions are less violent : speech improved : he has a very peculiar convulsive catch of the left shoulder.

Sumat Zinci Sulphatis gr. v ter die.

The sulphate of zinc was increased to eight grains, and after a short time he left the Hospital almost well, considering himself cured, though he still had a slight agitation in his manner when spoken to.

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The foregoing cases are the only three of which I have preserved any notes, though several more, came under my notice at the public dispensary, amongst which many had arisen from exposure to the influence of mercury in silvering mirrors. The symptoms have been remarkably constant and unvarying in all the cases I have seen, and were very faithfully described by my friend the late Dr. Bateman in his Report of the Carey Street Dispensary for 1812. The cases which I have thus witnessed, present a considerable variety in the mode by which the poisonous influence of the mercury has been communicated ; but in all, the atmosphere was probably impregnated in a very high degree. The symptoms, as well as the general treatment which appears to have most power in controuling them, point out some analogy and connection between this disease and chorea ; and though there is something quite peculiar in the character of the agitation, and the quick spasmodic catches, which are not to be mistaken, in the palsy from mercury, yet the actions are spasmodic as in chorea, and, as in that disease, they affect the muscles of the extremities and the power of articulation, and, as in chorea, they are rendered more and more severe, the more the mind is agitated : but there is this difference, that in chorea the irregular motions are often for a short time more under the controul of the will. With respect to remedies, a due regulation of the bowels, and

the administration of tonics appear the most efficacious in both diseases. In chorea likewise, if we can discover the exciting cause, we strive to remove it; but in the palsy from mercury, the exciting cause being obvious, we are more directly led to its removal as a chief indication in the treatment.

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## SPASMODIC WRY NECK.

There is a form of nervous irritation which is almost local, chiefly affecting females, and consisting in a frequent spasmodic action of the muscles on one side of the neck, often accompanied by very considerable pain; less however of a neuralgic character, than such as is caused by the violent action of the muscles. This disease is sometimes evidently connected with uterine irritation, and those causes which produce the different forms of hysteria; but at other times we have reason to believe that it depends upon some morbid irritation of the nerves, of a more fixed and local character. In the former case it frequently attacks before the meridian of life, or about the period of the cessation of the catamenia, and it is often removed by remedies. In the latter case I have seen it in elderly females; when it has been much less apt to yield, indeed has often bid defiance to all the means employed for its relief.

The two following cases may serve as examples of the different circumstances under which the disease presents itself.

## CASE CCXLIV.

*Spasmodic Wry Neck, cured by Subcarbonate of Iron.*

MARIA CHALTON, aged 28, was admitted, October 8th, 1829, into Guy's Hospital, under my care, with a spasmodic affection of the muscles of the neck, the head being almost constantly drawn towards the right shoulder, and the face turned rather backwards, but from time to time drawn more forcibly with a spasmodic jerk. She complained of much pain on the left side of the neck, increased greatly when the spasms came on; and of a catching pain passing under the left eye, and coming from the vertex to the shoulder of the left side, and extending, as she said, down the whole of that side of the body quite to the foot, the sole of which was often painful: the catamenia were quite regular, though she generally suffered more during the period of their being present. The account she gave of her first attack, was, that about nine

months before, while sitting exposed to a draft of cold air, she suddenly felt what she called a "nerve give way," on the left side of the neck, and the head was drawn to the right. For seven weeks she took no medical advice, but finding the complaint increase, she had a blister applied to the neck and some irritating ointment. She was afterwards cupped and again blistered; and about that time, instead of growing better she seemed worse, her head shaking, as she said, as if she had the palsy; and nothing which she had since done, seemed to have produced any beneficial effect.

I ordered a grain of the sulphate of zinc three times a day, the camphor mixture with sulphuric æther, and occasional doses of scammony and calomel. The zinc was increased to eight grains three times a day, and a blister was afterwards applied to the neck: but after continuing the zinc to the 29th, no material alteration seemed to have taken place, and I therefore prescribed the subcarbonate of iron in half-dram doses three times a day; this was increased to a dram the following day, and by the 3rd of November she stated that she felt an improvement. The quantity of subcarbonate of iron was increased, and on the 24th she was taking doses of two drams and a half each. She was improving, but slowly, and I ordered a moxa to be applied to the neck, where the chief pain was felt: this discharged considerably for some days, with a good deal of surrounding irritation. She continued the use of the subcarbonate, increased to half an ounce at each dose.

December 26th. She was in all respects much better; the medicine was however continued, and on January 5th increased to four drams and a half.

Feb. 2nd. She was perfectly steady, able to turn her head in all directions, and free from all pain or inconvenience, and left the house cured.

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In this case the circumstance of dysmenorrhœa, as well as the effects of remedies, points out the functional character of the disease.

#### CASE CCXLV.

*Spasmodic Wry Neck in an elderly female, probably depending on organic change in the Theca of the Spine.*

ANN BURKE, aged 67, was admitted into Guy's Hospital, August 26, 1829, labouring under a most excessive attack of Paralysis jactitans (or agitans), which was stated to be only of two months duration. She suffered much pain, and constant violent contraction in the muscles of the neck, by which the ear was brought to the shoulder, and frequently the chin to the chest: this agitation was so violent as to exhaust her strength. The first remedy employed was the subcarbonate of iron in doses of two scruples three times a day; and for the first two days the effect appeared most striking: but it did not continue; and various other remedies which were employed failed of giving any relief. She died January 15th, worn out by suffering, having latterly been further reduced by an attack of bronchitis attended with delirium.

## SECTIO CADAVERIS.

Slight effusion under the arachnoid, and some congestion in the veins ; but not the least alteration was to be discovered in any part of the brain or medulla oblongata. The spine was also carefully examined, but no disease was discovered, except that on the anterior part of the theca ; a minutely speckled appearance was produced by small cartilaginous deposits, assuming somewhat of a perpendicular direction in lines. The appearance began high up in the cervical, and extended along the whole course of the dorsal, vertebræ. (Plate XXXI. Fig. 5.)

In this case there was undoubted evidence that some morbid action had been going on in the dura matral covering of the spine, and the diseased structure surrounded many of the nerves at their exit from the canal ; and though the precise fibres of nerves on which irritation was produced by the change of structure may not be demonstrable, we cannot overlook such evident traces of morbid action, nor refuse to ascribe to them the power of producing severe symptoms of irritation.

## NEURALGIA.

Under the title of Neuralgia we may include two or three species of painful nervous affection, which seem to differ considerably in their exciting causes. The more active is of an inflammatory character, and is chiefly seen under the form of SCIATICA, or other painful complaints, following the course of the nerves. This frequently comes on from some exposure ; and the exquisite pain which is excited by external pressure on the nerves, as well as the precision with which the patient often describes the course of the nerves while he is pointing out the situation of the pain, sufficiently demonstrates that the nerve itself, or its investing membrane, is the part diseased. This is often considered a disease closely allied to rheumatism, and appears to be so, as it frequently accompanies and often succeeds rheumatic attacks ; yet it often exists, quite independently of rheumatism, in other parts ; and many of the remedies for rheumatism have little or no influence over sciatica, and the other neuralgic pains which bear the same character. I generally find this disease relieved by local bleeding by means of the cupping-glass, and this should be carried

to the extent of fourteen or sixteen ounces. A large belladonna plaster may then be applied over the origin of the sciatic nerve, or over the great trochanter, and a pill containing half a grain or a grain of opium, and a quarter of a grain of tartrate of antimony and a grain or two of calomel, may be given every six hours, the bowels being well opened two or three times a week, if necessary, by castor oil, or the senna draught. In this way the disease often yields with all the ease of a local inflammation; nor has it appeared to me that colchicum, which acts so powerfully in rheumatism, exerts any considerable influence upon it; neither do those chalybeates, which often controul other neuralgic pains, seem to act upon this disease in its acute stages. I should consider it as an inflammatory affection of the investing membranes of the nerves, and as such to be treated; but after a time it probably becomes more chronic in its character, and then may yield to chalybeates, which the following example seems to show.

### CASE CCXLVI.

#### *Neuralgia, cured by Subcarbonate of Iron.*

GEORGE BURNLEY, aged 38, was admitted under my care, February 3rd, 1830. He had been labouring, for the last three weeks, under most severe paroxysms of acute pain shooting down his legs, apparently from the loins, but chiefly affecting the leg and the back part of the foot: these pains increased towards night. The left leg was most affected, and the pain sometimes seemed to pierce from the heel to the instep. There was no inflammation of the part. I gave a fair trial to colchicum, to the combination of calomel, antimony, and opium, and to purgatives, with no effect: cupping from the loins gave temporary relief two or three times; guaiacum and bark were nearly useless: but by means of the subcarbonate of iron, in doses of half a dram every three hours, the pain was quickly diminished, and he was entirely cured in ten days.

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#### HERPES ZOSTER.

With regard to other forms of neuralgic ailment, some have been already referred to as truly hysteric in their origin; pains affecting the abdomen and the head more particularly. These yield, after a time, to the remedies required for hysteria, or they continue to torment the sufferers, in spite of remedies, for many years.

One form of neuralgia, of which I have met with some striking examples, and which is well worthy of being held in mind, is the pain which precedes and follows an attack of HERPES ZOSTER.

### CASE CCXLVII.

#### *Neuralgic Pain succeeding to Herpes Zoster.*

A WOMAN once applied to be received into the Hospital, for a severe pain, aggravated at times, occurring in the left side of her chest, which she told me had been considered, by an experienced practitioner, as an internal malignant disease; and she had at the time a seton in her side. I own I admitted her without much examination, from a wish to investigate more fully the grounds of the opinion which had been given: but on having the painful part exposed, there was not a moment's doubt as to the real state of the case, for the whole side was marked by the remaining scars of a severe attack of Herpes zoster, which enabled me to quiet the apprehensions of the patient; but in spite of the administration of various forms of opiate, both locally and by the mouth, it was several weeks before the pain gradually wore off.

### CASE CCXLVIII.

#### *Neuralgic Pain succeeding to Herpes Zoster, cured by Subcarbonate of Iron.*

SHORTLY after, another case occurred in an old woman, who was under my care during the whole progress of the disease: the eruption died away in its usual course, but the pains which remained were intense, and the daily complaints were most distressing: opiates were of no avail, and I determined to try chalybeates; accordingly I ordered a scruple of the subcarbonate of iron three times a day, and this I increased from day to day; but the relief was so rapid, that a very few days served to remove the pain entirely.

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This is the only case in which I have employed this remedy, and I therefore will not lay great stress upon it; but if the utility of this mode of treatment should be confirmed by future experience, it will not only enable us to relieve a painful disease some days or weeks before it would probably subside of its own accord, but the remedy also serves to throw some light on the neuralgic nature of the pain, and the peculiar connection of the original disease with some affection of the nerves.



## TIC DOULOUREUX.

Another and a much more dreadful form of neuralgic pain, is that which is usually known by the appellation of *TIC DOULOUREUX*. This may attack any part, but it is more particularly found affecting the nerves of the face ; and it is characterized by the most agonizing spasmodic pains, coming on suddenly, lasting for a few minutes or a few seconds, and then subsiding. This pain may occur once, and not be experienced again for months or years ; but more generally it returns again and again, either going on constantly, or having remissions more or less frequent and more or less lengthened, obtained by remedies, or taking place without any obvious cause. ,

This pain appears to be sometimes merely functional, and sometimes to depend upon organic causes of irritation ; and hence is probably to be traced the wide difference in the results of treatment.

Sir Henry Halford, not long ago, read an ingenious paper before the College of Physicians, to show how generally the source of the disease might be traced to some irregularity in the growth of bone, or some points and spicula of bone, irritating the nerve. This idea was borne out by several facts ; and when we consider how frequently the disease originates in nerves which pass from the skull and run through bony canals, which are liable to morbid growth, and other diseased conditions, it appears very probable that such causes of irritation should often take place. These views received considerable support from a fine preparation in the Museum of Guy's (see Cat. Guy's Mus. No. 1074.) of excessive growth of bone on the internal surface of the skull of a patient, who died affected with tic douloureux, where the tendency to redundant deposit of bone certainly gave countenance to the supposition that the disease had originated from the irritation it had occasioned. The same appearance, however, often accompanies other forms of cerebral irritation, as epilepsy (see Cat. Guy's Mus. No. 1073.) ; and we find cases which lead us to believe that tic douloureux sometimes originates in affections of the extremities of the nerves, and may be derived from wounds of fleshy parts, and cured by applications to the cicatrix ; as in a case related in the tenth volume of the *Journal de Medecine*, where the disease originated from a wound of the arm, and after two years of torment was cured by cau-

terizing the part. In cases like this, though they are rare, it is difficult to conceive how the irritation can have depended upon any distant disease. It is, however, a subject well worthy of further investigation; and it will perhaps be found that as much depends upon the character of the nerves irritated as on the nature of the irritating causes, the irritation of course acting in such cases upon nerves of sensation more than on nerves of voluntary or involuntary motion.

Various remedies have been recommended in the cure of this disease, and have occasionally been found beneficial. Mercury, either used in the way of friction, or administered in the form of calomel, with opium, till salivation has been produced, has more than once relieved or cured the disease.—A case is stated, in which tar applied externally to the parts where the pain was experienced, cured in three days a disease of as many years standing. Large doses of bark given every hour have afforded great relief; but upon the whole, the remedies which have appeared to me most useful are the subcarbonate of iron, administered in the large and frequently repeated doses recommended by Mr. Hutchinson, and the arsenical solution, carefully attending to the regulation of the bowels. When these fail, there is always reason to fear that some organic source of irritation is keeping up the disease, which will in all probability frustrate our endeavours. The division of the nerve has been often performed, and very generally with at least a temporary good result; but unfortunately, the alleviation of suffering has been but for a time, and the painful affection has sooner or later returned, either by some re-union of the divided nerve, or through the medium of that property of the nerves by which the divided extremity continues to communicate impressions to the sensorium, resembling those previously afforded by the extreme ramifications;—a property which is frequently illustrated in cases of amputation, where instances are common of the sensation of a limb appearing to continue after it has been removed for many years.

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The two following cases afford examples of this disease, presenting some variety of aspect, and showing how much may often be effected by remedies, but how little we are to depend on those who speak with confidence of the power they possess over the disease in all its different forms.

## CASE CCXLIX.

*Tic Douloureux depending on a Tumour at the Basis of the Skull.*

MARY GROSSMITH, aged 40, from Westerham, was admitted under my care into Guy's Hospital, in August 1827. She was thin, and her countenance was strongly marked by the effects of long suffering. Her most prominent symptom was extremely acute pain on the left side of her face, which was seldom completely removed, but became more severe in paroxysms. It was regarded as tic douloureux by all who had seen her, and resisted all the means employed for her relief. Within about a fortnight of her death, three molar teeth on the affected side were drawn at different times: after each operation, the pain was for a time rendered less severe, but an offensive discharge proceeded from the wounded gums, and for a few days before her death a discharge of the same kind took place from the nose also.

## SECTIO CADAVERIS.

The membranes about the upper part of the brain offered nothing remarkable, but the quantity of serum, both external to the brain and in the ventricles, was more considerable than is natural. The fifth ventricle was rendered very conspicuous. The brain was softer than in perfect health, and the medullary matter slightly mottled with a light purple cloud. The dura mater, immediately under the anterior part of the left middle lobe, was considerably but irregularly elevated by fungoid tumours, equal, collectively, to about the size of a pigeon's egg. There was a corresponding depression in the substance of the brain, which at this spot was slightly adherent and disorganized, but not completely softened, nor was the raised portion of the dura mater ulcerated or materially altered. The bone beneath the tumour was diseased, and in some parts offered no resistance to puncture. The morbid growth appeared to have extended from the sphenoidal sinuses. The mucous membrane lining all the nasal cavities on that side were similarly affected, but to a less degree. There was a soft pedunculated polypus of about the size and shape of a raisin attached between the turbinated bones. The branches of the portio dura, so far as they were laid bare in the removal of the diseased parts, exhibited no morbid appearance. (See Cat. Guy's Mus. No. 1667.)

The pleura on the right side was very generally united by old adhesions. The whole lung was rather consolidated there, with one or two immature tubercles of the size of sparrow's eggs at the apex, and miliary tubercles were distributed thinly through all parts: the left was much less diseased.

The heart was remarkably small. The abdominal viscera were much wasted, and there did not appear to be any fat in the cavity. The peritoneum was free from adhesion, and there was no effusion in any of the cavities of the chest or in the abdomen. The mucous membrane of the stomach was thin, soft, and a little discoloured; that of many parts of the small, and the first part of the large intestines was of a gray colour, of different degrees of intensity, from an infinite number of black points. The patches of the aggregate glands were slightly elevated, probably in part owing to the attenuation of the coats of the intestines: the solitary mucous glands were beautifully distinct, raised almost like vesicles, and surrounded by an areola of gray points.

There was nothing remarkable in the other viscera in this cavity, except that the spleen was small, and the uterus rather large and indurated.

In this case, the diseased state of the bone was quite in accordance with the views entertained by Sir Henry Halford.

### CASE CCL.

#### *Tic Douloureux treated by Subcarbonate of Iron.*

MARY COTTON, aged 81, was admitted under my care into Guy's Hospital, August 19th, 1829, labouring under well-marked tic douloureux, which had attacked her suddenly at the angle of the lower jaw on the right side, twenty-five weeks previously, before which time she had enjoyed excellent health. The paroxysms of this disease had been constantly repeated, so that many times in the day she was thrown into the most agonizing state of pain, proceeding from near the ear to the forehead, and along the lower jaw and down the neck; speaking or eating, or exposure to the cold, would immediately bring on the attack: she had lost flesh, and her general health had suffered much. As far as I was able to ascertain from her report, the only remedy which had yet been tried was the arsenical solution.

Habeat Ferri Subcarbonatis ʒj quarta quaque hora, et Haustum Sennæ pro re nata.

24th. She expressed herself slightly relieved.

Augeatur Ferri Subcarbonas ad ʒij quarta quaque hora.

31st. The face is greatly improved, so that for the last twenty-four hours she has scarcely had the slightest return of the pain. She complains greatly of hæmorrhoids, and says that nothing passes from her bowels but the powders.

Repetantur Pulveres, et Habeat Infus. Lini pro potu.

Sept. 1. No return of pain ; but as she had one or two stumps of teeth in the lower jaw of the right side, they were removed. She continued taking the medicine ; and on the 9th of September left the House without any return.—In a few weeks, however, she again applied to the Hospital, with a fresh attack of the same complaint, which was again removed by means of the subcarbonate of iron.

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#### HEMICRANIA.

There is another painful affection which attacks the head, and sometimes extends to the forehead and the face, assuming more or less of an intermittent form, which, from its being generally confined to one side of the head, has been termed *HEMICRANIA*, and may be well ranked amongst the neuralgic diseases. This disease is often intimately connected with an hysterical diathesis, and is frequently the attendant on pregnancy, or occurs during the debilitating process of suckling : and its intermittent character is sometimes to be traced to a connection with causes on which intermittent fevers depend. It is usually much more confined to the head than *tic douloureux*, putting on the form of a local headache ; and it generally yields with much greater readiness to medicine. The remedies most efficacious are such as afford relief in genuine intermittents ; and frequently, when iron and bark in their different forms have failed, the arsenical solution is found to act most favourably.

I might give several cases illustrative of this disease ; but I shall content myself with stating the following, which has occurred in the clinical ward of Guy's Hospital within the last few days.

#### CASE CCLI.

##### *Hemicrania, cured by Arsenical Solution.*

MARY PRINGLE, aged 21, was admitted into the Clinical Ward, under my care, January 12th, 1831. She was a short stout young woman, of a light complexion, engaged in sedentary occupation, and had enjoyed good health till about four months before, when she had suffered from inflammation of the right eye, for which she was cupped and leeches ; and when it was improving, about three months ago, she was suddenly attacked with a pain, shooting from the right orbit to the occiput of the same side. This pain, though she had been cupped and leeches and taken a variety of medicines, had continued to increase, being generally aggravated towards the evening and during

the night; but had never been subject to distinct intermissions and paroxysms. At the time of her admission the pain was constant and unabated, shooting from above the right supra-orbital foramen to the occipital protuberance on the same side, being attended by a throbbing anteriorly, and having an exquisitely tender circumscribed spot, about the size of a half-crown, at each extremity of the affected part. The gentle pressure of a bandage round the head gave slight relief. The pupils were dilated: the bowels open: the catamenia irregular for the last three months: tongue, pulse and skin, nearly natural.

Sumat Liquoris Arsenicalis  $\mathfrak{m}$  v ex Infuso Cascarillæ ter quotidie, et Habeat Pilul. Hydrarg., Extracti Colocynthis Compositi, et Pilul. Galbani Compos.  $\text{āā}$  gr. v alternis noctibus.

13th. Has had great pain in the night, and vomited some food towards morning. The pain in the head was attended, for the first time, with giddiness and numbness of the limbs. Three copious fluid dejections: pulse 92, quick. No particular change took place up to the 20th, except that for two days after I had been induced by the continued severity of the pain to take some blood by cupping from behind the ear, her suffering was greatly increased. The remedies were continued. On the 21st, nine days from the commencement of the treatment, a gradual diminution began to take place in her suffering, and by the 25th all pain had ceased, except two or three very slight shoots across the head during the night; and on the 2nd of February she left the Hospital cured.

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In the treatment of cases of this kind, it is occasionally impossible not to feel anxious lest some more fixed disease should be giving rise to the symptoms, more particularly if other circumstances, as sickness, giddiness, or loss of power or sensation, should casually occur. But while we carefully watch every new symptom, we must not be induced too easily to relinquish our remedy, as it frequently happens that several days elapse before any improvement is manifest.



## CASES

### ILLUSTRATIVE OF THE PHENOMENA AND CAUSES OF EPILEPSY.

THE modifications and varieties of Epilepsy, both as to the period and mode of its first invasion; the frequency of the paroxysm; the phenomena preceding and accompanying it, and its duration; as likewise the effects of each paroxysm, and the permanent injurious results from repeated paroxysms, form a history of facts, the detail of which would occupy a volume; while an attempt to explain them would in many cases require a very minute consideration of the exciting causes, and involve speculation regarding the modifications of the nervous system in different individuals, which are too extensive, too complex, and too uncertain, to be at present entered upon. I shall, however, endeavour to draw up a general outline of the most prominent varieties in the chief points relating to the history of this disease.

Epilepsy has sometimes been seen in the earliest infancy, independently of those casual convulsive seizures to which children are subject during the period of teething, or under disordered states of the alimentary canal, and which in many cases so exactly resemble epilepsy, as not to admit of being distinguished from it. From the age of infancy there is scarcely a period at which the disease does not appear; the more common periods are, I think, about seven or eight years of age,—probably about the second dentition,—and from fourteen to sixteen, shortly before the age of puberty: but for a few years subsequently to this, the disease is very apt to occur; I have also known several cases in which the first fit has taken place between the age of thirty and forty, not a few after sixty, and some quite in the decline of life.

There is little doubt that the circumstances which determine the period of the first attack are in many cases quite accidental; yet there are leading periods in the evolution of the frame, and peculiar circumstances connected with certain periods, which may well be considered as influential in this respect.—In infancy the nervous system is delicate, and easily acted upon by various causes of irritation;—then follows the trying period of teething;—in a few years the second dentition occurs;—a few years later, all the great changes connected with the age of puberty;—to this follow the excesses and exposures of manhood;—and after the lapse of years the vigour of the system fails, and many causes act to derange the nice balance of the constitution: the bowels often become sluggish; changes



more or less serious take place in the structure of the arterial and venous system ; and many causes, organic or functional, which had before been unable to exert an influence on the vigorous frame, acquire power from its relative weakness.

The first paroxysms very frequently occur during the night ; and when accidentally discovered, it is quite uncertain whether something of the kind may not have taken place before, and passed unobserved.—The first fit often comes without a warning, and if it do not occur in the night, sometimes takes place with most inconceivable suddenness ; the patient while dressing himself in apparent health, falls to the floor senseless ; or, in the very act of putting a morsel into his mouth, loses his recollection, and is stretched convulsed upon the ground ; while at other times the first attacks are of the slightest character.

It sometimes happens, though comparatively seldom, that a single paroxysm occurs, and it is never repeated during life ; somewhat more frequently the paroxysm is repeated at very long intervals, several years intervening between the attacks ; still more frequently the fits return at irregular intervals of a few months or a few weeks ; sometimes they observe nearly regular periods ; sometimes they return daily or nightly ; and I have known twenty, thirty, or more renewals of the paroxysm within twenty-four hours. This variety in the frequency of repetition depends occasionally on explicable causes, but is often totally unaccountable : when each night brings back the fit, we naturally account for it by the congestion attendant on the state of sleep ; where in females the fit observes a monthly period, we trace it often to nervous irritation in sympathy with the uterus ; and when long periods have intervened, we may usually trace each distant paroxysm to the repetition of some excess, or to a neglected state of the bowels ; but where it occurs less regularly, we often seek in vain for a probable exciting or favouring cause.

The phenomena preceding, accompanying, and subsequent to each paroxysm, present a wide variety. In some, as I have just said, the fit is immediate, without the slightest warning : in other cases, previously to a fit we find a considerable influence excited over the whole disposition of the mind : I have known an unusual flow of spirits for a day or two the constant forerunner of the attack ; on the contrary, I have seen a depressed, almost a sullen, state of mind mark the approach of a paroxysm ; sometimes an unusual drowsiness is the precursor of the fit. In some cases

certain feelings are experienced, which at once give the alarm,—a tingling, or slight spasmodic action of the muscles,—sensations, which the patient often calls “a working :” this may continue for a whole day or more, and may even subside without the fit coming on ; or it may scarcely afford time for the patient to prepare the attendants for the threatened event. At other times a very peculiar sensation, not unlike a creeping or a cold air passing over the skin, is felt in some distant part of the body, as the hand or the foot, or a single finger, and this seems to advance by quicker or slower steps towards the head, sometimes affecting the cheek, and then the violence of the paroxysm often comes on, but it sometimes even then again subsides.

The character of the fit itself varies as much as the premonitory symptoms ; often, it is simply a momentary absence of mind, the eye fixed as in thought, yet gazing vacantly, no convulsion, no sound, the occupation of the hand ceases, while the mind for a moment is annihilated ; the cloud passes off, the intellect returns, and often, unconscious that its operation has been suspended, the patient resumes the occupation in which he was engaged. At other times, this loss of mind is connected with a slight appearance of convulsive or involuntary action ; the fingers, generally of one hand, sometimes of both, are moved irregularly and without object ; the eyes are rolled from side to side, or drawn under the eyelids, or some catching motion is seen in the muscles of the face.—In other cases, again, the convulsion is more obvious ; the head is drawn forcibly to one side, and the hand sometimes follows in such a way, that at first it appears to be seeking something towards which the eyes are directed. This may be the whole fit, but more commonly is only the commencement of a much more violent and appalling paroxysm, in which the whole frame is agitated, drawn together, and thrown into tremulous motion, as by the excess of muscular contraction. Sometimes the fit commences by a sudden cry, uttered as the patient falls senseless to the ground, and there either lies motionless, or more frequently agitated with such powerful muscular contortions, that two or three attendants scarcely suffice to prevent his suffering injury from the objects around ; the teeth are gnashed, lacerating the tongue, and the saliva, frothy with air and red with blood, flows from the mouth.

The duration of these attacks, even in their most violent form, is often only a few minutes, seldom above half an hour, unless, as the first fit is

obviously going off, a second succeeds, and in that way the paroxysms may be repeated through several hours. The paroxysm past, some few recover as if awaking from a slumber, and return at once to their former health; others suffer severe headache for a few hours; the majority become drowsy and fall into a deep sleep, or pass into that state without having recovered to consciousness after the convulsion was past. In this state a few hours are passed, and then apparent health is restored. In some cases, however, this sleep is a death-like sopor, a state of insensibility rather than of sleep. I have seen a patient in this condition for a whole week, almost apoplectic, then gradually recovering, at first to a state bordering on idiocy, and this gradually going off, but not completely subsiding for several days. I have also known the epileptic fit to be followed by temporary paralysis, and in some cases by a state of raving delirium, which has continued for several days after every fit. When the paroxysm has passed away, there is very frequently not the slightest knowledge of what has happened; so that in some cases it is only from the urine having passed unconsciously, or from some other accidental circumstance, that either the patients or the attendants are made acquainted with the fact. I once had a young woman under my care, whose jaw was always dislocated from its articulation in the violence of her epileptic fits; and although the house had been disturbed during the whole night by the attendance she required, yet, on waking, the only knowledge she had of the attack was from finding her jaw displaced. In a few cases, but little permanent effect has been produced, either on the mind or the body by repeated paroxysms, but these are fortunate exceptions: in some cases paralysis follows as a consequence; in other cases the two diseases go on in their course together: in by far the majority of cases the mind is enfeebled; in many cases actual imbecility is induced: in some the disease, which began by showing itself in epilepsy, terminates in confirmed insanity.

Such being a short sketch of the varied history of Epilepsy, we are naturally inclined to ask, on what does the disease depend? That it is the result of nervous irritation, the whole character and course of the symptoms, and the mode in which they approach and subside, afford the most complete evidence; but it still remains to be discovered what is the essential nature of that irritation, and in what way it differs from the irritation which produces hysteria or chorea, tetanus or hydrophobia; and whether that difference depends upon the degree of irritation, the mode of irritation, or the portions of

the brain or nervous system irritated. Unfortunately, upon these points, our investigation of the morbid appearances affords us but imperfect information. The tangible source of irritation is often within the brain itself, or its membranes, or its bony parietes: at other times we are unable to trace any other appearances than such as would mark a degree of congestion in that organ. Sometimes we infer from the symptoms, or deduce from appearances after death, that the attack has depended upon some distant source of irritation, as the uterus, or the intestines; and there is still so great a similarity between those attacks produced by distant irritation, which leave scarcely a trace upon the brain itself, and those which depend immediately on cerebral disease, that we must suppose that the state to which the organ is brought, in order to produce the attack, is nearly the same in both. It is probable that there is an original formation of the brain, which renders one individual more liable than another to the irritation producing epilepsy; that in such brains, comparatively slight irritations, and such as would produce little disturbance under ordinary circumstances and a more healthy original organization, give rise to the epileptic attack; but that there are sources of irritation so overwhelming that scarcely any brain can withstand them; such, for instance, as important changes in the skull or in the brain itself and its membranes; and when once that irritation has been excited by any cause whatever, the brain becomes more liable to its renewal; and I believe that almost always, during the epileptic paroxysm, either as a cause or an effect, sanguineous congestion takes place within the brain.

As far as I have been able to infer from my own observation, I should say that the organic causes of epilepsy, connected immediately with the brain, are more frequently such as affect its surface, than such as are deep seated in its substance. Thus we find that morbid growth, taking place in the skull, showing itself by a thickened heavy state of the bone, or by a roughened surface either internally or externally, or a remarkable prominence in the natural projections at the base, is often associated with epilepsy. Slow changes, producing a thickened condition of the membranes, will not unfrequently be found attendant upon epileptic attacks. Tumours pressing on the surface, or amalgamated with the cineritious substance, will also be found in cases of epilepsy: and these observations connect themselves in some way with the hints thrown out at page 46 and 381 respecting the apparent dependence of spasmodic action, in many cases, upon injury done to the cineritious substance. It is an idea entertained

by Dr. Foville, that the cineritious is the more active part of the brain generally, with regard to all its functions; and that the medullary part is more particularly employed in the conveyance of the motions and sensations, or whatever else may be acted upon or produced in the cineritious part. And supposing for a moment this to be the case, we might expect that lesion of the cineritious substance would produce disordered action in that part; and that such action might be transferred to the distant parts of the body, producing disordered and involuntary motions: whereas, if the great injury were done in the substance of the brain, the means of communication with the active part being cut off, paralysis might result, more or less mingled with convulsion, in proportion as the cineritious substance is more or less involved.

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In the treatment of Epilepsy, two great objects present themselves:—to correct, as far as possible, that condition of the brain which favours the disease; and to remove, when we can, the exciting cause. With reference to the cure or relief of this disease, the distinction into functional and organic, as concerns the brain, is most important, and much good may be hoped from an attention to those distinctions, which arise out of the other different organs of the body, by whose derangements the disease appears to be brought into activity. This subject has been very rightly insisted upon by Dr. Prichard, in his excellent treatise upon this disease; for if we consider the functional disorders excited, either by uterine or by intestinal irritation, or by deep impressions on the mind,—our treatment will necessarily be greatly influenced by these views of the exciting cause. We must likewise look to the general condition of the system at the time the disease has come on, whether plethora or inanition appear to have predisposed to the attack; since either of these states are very capable of producing that irregular congestion within the brain, on which, probably, the attack immediately depends. In the treatment of the disease, when depending on organic changes in the brain or its appendages, our chief care must be to promote an equal distribution of blood; and more especially to draw off the circulation from the injured part, so as to prevent any sudden temporary increase of irritation, and to retard, as far as possible, the progress of the organic mischief: for this purpose, the strict regulation of the bowels is, above all things, necessary, and all those precautions which can prevent the mind from being disturbed and suffering agitation. The effect of

local bleeding and of counter irritation should be tried. Setons and issues in the nape of the neck, or perpetual blisters, are sometimes decidedly useful. The ointment of the tartrate of antimony may be rubbed either on the neck or on the scalp, till an abundant eruption is produced. I have no experience of the effects of large issues along the vertex, as recommended lately by Dr. Prichard in some chronic head affections. I have occasionally seen good result from exciting a gentle mercurial action on the system, and frequently from brisk mercurial purgatives. Still, however, if an organic cause exist, though we may hope to relieve symptoms and prevent the rapid increase of the disease, the removal of the cause is almost impossible. If no organic change exist in the brain, it will be an object of great importance to improve the general tone of the nervous system; and for this purpose we must attend to the various functions, re-establishing each which is deficient, as far as their defects are obvious, attending most particularly to the state of the circulation in the head; and we must have recourse to such tonic remedies as appear to act especially on the nervous system. It is amongst the mineral tonics that we shall seek most advantageously for such remedies. We have already seen the effects of sulphate of zinc, and different preparations of iron, in chorea; and of the arsenical solution in hemicrania: and deducing conclusions from analogy, we are led to expect that some effect may be produced on the nervous system in epilepsy by these remedies; nor are we altogether disappointed: for both from them, and from the nitrate of silver, we occasionally find the happiest effects result. The shower-bath is likewise useful, and the whole class of diffusible stimuli, as in hysteria.

## CASE CCLI.

### *Slight Epileptic Attacks preceded by Aura Epileptica.*

MR. R—— M——, a tall spare young man, consulted me lately under the following circumstances.—He had for the last two or three months occasionally experienced a temporary indistinctness of vision, followed by some headache; and the morning before he came to me, having been up rather early and exposed to the cold, he was seized with a tingling sensation in the middle fingers of his left hand, which seemed to run up his arm, and his tongue was then drawn back, depriving him for a few minutes of the power of articulation: he then became quite well, and remained so till the evening, when, being at a party in a hot room, precisely the same train of sym-



ptoms returned; and although it was not perceived by any of the company except his brother, who was with him, he was unable to articulate plainly for nearly twenty minutes. The attack then passed off, and he resumed his usual health.

## CASE CCLII.

### *Slight Epileptic Symptoms occurring very frequently.*

RICHARD RONEY, aged 36, a large robust man, with a high and ample forehead, was admitted under my care, into Guy's Hospital, October 13th, 1830.—He stated, that about three months before, while at work, he felt a numbness in the left hand, which passed up the arm to the face, affecting the cheek on that side and the tongue to such a degree as greatly to impede his speech: this continued for about twenty minutes, after which he resumed his work for the day, but some headache remained. Six weeks after, he had a similar attack; and he has had four more since that time,—but the attacks have sometimes affected the right, sometimes the left side. The last attack was the day before his admission, when it took place in the arm and face, rendering the hand useless for nearly half an hour. Between the attacks he has occasionally felt faint and nervous, and for the last seven weeks has not returned to his work.—After his admission, attacks of the same character recurred very frequently, particularly at night, generally beginning about the little finger and that side of the hand, but sometimes affecting the feet and legs, and occasionally accompanied with vertigo of short duration.

## CASE CCLIII.

### *Epilepsy, with Cerebral Congestion;—fatal.*

J—C—, aged 59, of sallow complexion, had been a good deal distressed in mind from being reduced in circumstances. He complained of slight pain in the head, with giddiness, loss of appetite, and great depression of spirits, but went as usual to his work, which was in a shot and lead factory: in a short time these symptoms increased, and on entering his house, June 29th, 1829, after a more than usually fatiguing day's work he fell senseless; but it was said that he was not convulsed, nor did he vomit. From this state of insensibility he shortly rallied, his wife having administered a little spirit: the next day he applied for medical assistance; he was bled to twenty-four ounces, and ordered some aperient medicines: the following day he was considerably better, and continued to improve. He, however, on the 4th of July, had a return of his symptoms, with increased violence; and on the medical man being suddenly called, he found him in a fit, with some convulsive symptoms. He was immediately bled to thirty ounces, his bowels very freely purged, and evaporating lotion applied to his head: he appeared to rally under this treatment, and was able to sit up. Two days afterwards he had another fit, which appeared more violent than the others: he was



bled to thirty ounces, a blister applied to the nape of the neck, evaporating lotion continued, his bowels freely acted upon,—but he did not rally as before. He remained almost completely unconscious, yet still would sometimes, for a moment, seem to know those around him, and would even answer a question. In four days from the last attack, the fits returning with frequency, he sunk.

He never had any fixed paralysis, for within a day or two of his death he took his medicine and lifted it to his mouth with either hand, and there was very little convulsive action at any time.

#### SECTIO CADAVERIS.

The scalp was more free from blood than usual, so that none flowed from the divided vessels: the calvaria was of the ordinary thickness. On the interior of the skull were observed two or three remarkably large orifices for vessels. The outside of the dura mater was bloody from bleeding vessels of considerable size.

On removing the dura mater, the arachnoid was slightly vascular, and had a little serous effusion under it; this however so slight, that it was doubtful whether it were more than natural: the arachnoid and pia mater came off with great facility, were firm, and greatly loaded with vessels. The convolutions rather flattened, and the cineritious matter of a peculiar yellow tint. The substance of the brain of natural firmness, but more remarkably perforated by vessels than I almost ever before saw; it did not appear as if they contained any great quantity of fluid blood, for the divided vessels made no blotches of blood; but they all appeared full, and the appearance of purple mottle or marbling was most unusually strong, considerably more than in the specimen depicted at Plate XIX. Fig. 6. This appearance of vascularity was greatest in the upper part of the hemispheres, and most of all on the left side. The cerebellum was in the same state, and more particularly on the left side. The ventricles were very small, and did not, together, contain a dram of fluid. The choroid plexuses were remarkably pale; and the large veins which run along them contained no blood, looking like white worms or threads. There was very little serum in the basis. The longitudinal sinus scarcely contained any blood; the smaller sinuses a small quantity in a fluid state.

We were not allowed to examine the other cavities.

It would seem that the unusual quantity of blood in the head was, in this case, both in the very small vessels which perforate the substance of the brain in every direction, and in the pia mater; and though the cortical

portion was not vascular, it was not natural in its appearance. It is worthy of remark, that the son of this man had, but a short time before, laboured under chorea, and the alarm occasioned by the attack of the father brought back the chorea in all its former severity.

This case presents an example of congestive apoplexy combined with epilepsy, and the apoplectic symptoms were so urgent as to induce a very well informed practitioner to have recourse to large depletion. The benefit derived from this treatment was so striking and unequivocal, in the first and second instances, as to prompt to their repetition: but they failed in producing the same good results, perhaps because the powers of the patient were then considerably reduced; and there was, therefore, increased tendency to local congestion, and increased irritability. What might have been the result of this most severe case under any treatment is scarcely doubtful; but, reasoning from similar instances, I should have augured better of the effects of a more limited depletion by cupping, together with the other local means employed, and the combination of purgatives and tonics. I have, in many cases where the epileptic character has been decidedly marked, been led to this conclusion. In the present case the vessels were habitually enlarged, and might probably have been the cause of the small size of the ventricles.

The following is another case in which bleeding was had recourse to, though in less quantities; but the result was not favourable.

#### CASE CCLIV.

##### *Epilepsy, with Cerebral Congestion;—fatal.*

A. C., aged about 21, a fine stout well-made man, enjoyed good health till about two years ago, when he had an epileptic fit in the night, without any assignable cause. After this, he frequently had two or three such fits in a night, and during six months they were confined to the night: since that time they had occurred in the day, and so frequently, as to render it quite unsafe to allow him to leave the house alone; and for the last few months his intellects had obviously been weakened.—A week before his death he had fifty fits in one night; and since that time he had had returns of fits, and been quite irrational.

#### SECTIO CADAVERIS.

The lungs showed some emphysema, the air being diffused between the lobules.

The liver was natural in its texture generally, but spotted with yellow patches of irregular and angular forms, in which the substance of the organ appeared condensed and bloodless, so that the finger passing over the surface felt more resistance from the natural than the yellow part; this appearance extended about a quarter of an inch into the substance, and subsided suddenly on the surface. The gall-bladder contained inspissated bile; and some bilious fluid was found in the stomach.

There was slight but well-marked effusion under the arachnoid, and slight effusion into the ventricles. The arachnoid with the pia mater separated tolerably well from the brain. The cortical portion was not more dark-coloured than natural: the fibrous texture of the brain was well marked. The whole medullary matter was pervaded by vessels, and the orifices from which they came were more distinct and larger than usual. The whole brain was mottled or marbled with vascularity; but nothing like structural disease could be seen, except in the pituitary gland, which appeared large and hard and vascular, but not to the extent of rising above the sella turcica. The cerebellum very natural; the medulla oblongata rather vascular.

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In this case, it is very difficult to point out anything in the appearances after death to explain the origin of the epilepsy. That cerebral congestion took place in the course of the attacks is obvious, and this leading even to the effusion of serum. Nor must we overlook the morbid appearance of the pituitary gland, to which much influence has been ascribed in epilepsy. The organ which seemed most capable of producing irritation was the liver. The lungs were in a state of emphysema between the lobules, which I have more than once seen in cases of death from severe convulsion. The bleeding was not carried to any very great extent in this case, as it seemed to do no good.

#### CASE CCLV.

*Epilepsy, coming on in advanced Age, with evidence of great Cerebral Congestion.*

I WAS called to a lady, about 60 years of age, the mother of a large family, labouring under an attack of epilepsy. It appeared, that two or three times within the last four years she had suffered fits of a mingled apoplectic and epileptic character, which had never been either accompanied or followed by paralysis; and she was accustomed

from time to time, when she felt peculiarly heavy, to lose a few ounces of blood by cupping from the neck. She had been so drowsy and lethargic for the last two or three days, that cupping had been recommended but not performed, and the day before, she had some friends dining at her house.

At six o'clock in the morning the maid-servant saw her mistress, as she supposed sleeping soundly; but about half-past, she observed that she had fallen into a state of insensibility. The family medical attendant was sent for, who, besides the deep stupor, found some convulsive action. He ordered cupping from the nape of the neck; but when four ounces of blood had been drawn, a complete epileptic fit came on. When she had recovered a little, eight ounces more of blood were taken.—I found her sitting in bed, with the head much raised: she had of late become exceedingly restless, but was sensible enough to answer questions, though in a drowsy way, and she denied having any pain in the head or elsewhere. As I held her left wrist to feel the pulse, which was then sharp and quick but not strong, the arm began to catch with slight convulsive motions; the hand was raised as if in the act of laying hold of something; the head was turned towards me, and gradually drawn round to the left side; the face, and by degrees the whole frame, became convulsed; the hands were clenched, the lips drawn together, and froth issued from the mouth. The convulsion was of the severest kind, and during it the pulse became almost imperceptible at the wrist. A cold wash of vinegar and water was immediately applied to the head, and after a few minutes the convulsion was followed by a sopor almost stertorous: the respirations were 24 in a minute, and the pulse 100. A blister was ordered to the nape of the neck, and a bladder with ice to the head; and finding that the bowels had been rather costive, it was desired that as soon as she could be made to swallow, she should take senna and salts till a free action had been produced.—I left her still in a state of deep sopor; but in about an hour she was able to answer a question or two in monosyllables, and fell again into a doze. When I saw her in the evening, the medicine had produced most copious lumpy dejections. She had experienced some slight twitchings in the limbs of the left side. She was sitting in bed as before, propped up by pillows; but though apparently in a doze, answered all questions very distinctly: and when we were talking of repeating the medicine, she said she should shortly have another motion. Pulse 80, and by no means strong. She was allowed to take a little beef-tea and jelly, was ordered to take saline draughts from time to time, and repeat the purgative in the morning. The ice to be continually applied to the head.

The following morning she was less drowsy, though still inclined to sleep. The ice had been kept on during the whole night: she had suffered a few slight spasmodic catches.

Habeat Hydrarg. Submuriatis gr. j, Extract. Colocynth. comp. gr. v statim.  
Repetantur Haust. Salin.

In the evening she had passed two or three dark-coloured watery stools; complained

much of thirst; tongue dry and loaded. She was ordered a spoonful of wine in her arrow-root.

On the next day she was quite herself; and by adopting a very strict regimen and much care, she got into a better state of health than she had been for some years.—She suffered, however, another attack about a year afterwards, but of a much milder character.

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This case is closely analogous to Cases LXXXVI. & LXXXVII.; but in those the apoplectic, in this the epileptic symptoms bore the most prominent part. The observations made at page 202 are strictly applicable here. The convulsive character of the fits; their increasing under the cupping; the absence of obvious paralysis during any part of the attack; the diminished force of the pulse, almost amounting to obliteration, during the attack,—all led to the conclusion, that large depletion might rather prove injurious than beneficial; and the result fully justified the practice which was adopted.

### CASE CCLVI.

#### *Cerebral Congestion, with sudden temporary Delirium.*

GEORGE FROST, aged 20, was admitted into Guy's Hospital under my care, December 3rd, 1829. It appeared that he had been all his life subject to temporary feelings of heaviness and drowsiness, and that when about twelve or fourteen years of age he used occasionally to have fainting fits, but in other respects had enjoyed remarkably good health till three weeks and four days before his admission, when he was attacked with intense headache and a rigor, which continued all night; but the following day he was so much better as to return to his work in the stable; and he continued pretty well for three or four days, when his headache returned with great severity, and recurred occasionally till five days before his admission, when he became delirious, and wandered in the streets without hat or coat, walking in a state of complete unconsciousness from Clapham Common to Shoreditch, and was between four and five hours on the road. His intelligence returned at that time: he was bled and cupped, and since that had shown no signs of delirium; but the headache returned on the following morning, and continued to the time of his admission; the pain appeared nearly confined to the right side of the head, and was greatly increased by lying on the left. Pulse 120, and sharp: no febrile aspect, loaded tongue, nor heat of skin.

Mittatur Sanguis ad  $\text{℥xij}$ .

℞ Hydrarg. Submuriatis gr. j.

Pulver. Antimonii gr. iij.

Conserv. Ros. q. s., fiat Pilula quarta quaque hora sumenda.

3rd. Blood not buffed. Pulse 104, less sharp; he still complains of slight pain on the right side of his head: no stool.

Applicetur Emplastrum Cantharidis inter scapulas.

Habeat Haustum Sennæ ad sedes. Repetantur Pilulæ.

4th. Headache rather increased. Pulse 92: four copious dejections.

Repetantur Medicamenta.

5th. Complains of rather more constant pain in the head, but not severe. Pulse 96: skin moist; mouth rather tender.

Radatur caput, et applicetur Embrocatio frigida.

Repetantur Pilulæ ter die.

7th. The pain of the head is nearly gone since the application of the cold. Pulse 100, more natural.

11th. No pain in the head. He has kept the cold application constantly to the head: bowels costive: pulse 84, very moderate.

Sumat Pil. Galban. comp. gr. v; et

Extract. Colocynth. comp. gr. v. bis vel ter quotidie.

Although there are some circumstances in this case which might render its nature doubtful, I have no hesitation, on a consideration of all the symptoms, the mode of their attack, and the way in which they subsided, in placing it under the head of epilepsy: and in the two following cases will be found further examples of epileptic delirium or mania.

## CASE CCLVII.

### *Epilepsy followed by temporary Maniacal Delirium.*

— PERRATORE, aged 33, a carpenter and joiner, a tall man, of slender make and remarkably long neck, had become decidedly thinner during the last three months, during which time he had frequently complained of lightness of the head and giddiness, and a nausea and peculiar sinking at the pit of the stomach; but he had always denied having any pain in the head, and had not been sick at the stomach: he had been weary, and his bowels generally costive. He never had anything like a fit in his life. He complained a good deal more on Friday, May 21st, and on that day came home ill from his work; he took salts on account of a feeling of fulness in the bowels and lightness in the head. He did not apply for advice, but grew worse, and continued to work, till in the evening he was seized with a fit while talking to another man. He fell senseless to the ground on his face: his respiration was natural; his face rather pallid; he was sick at the stomach; and was brought home quite senseless, but without



any obvious paralysis. He was bled once, had leeches to the temples, and took the extract of colocynth with calomel, which he did with great difficulty. About one in the morning of the 22nd he was first convulsed, and after that the convulsions returned frequently in the most severe manner, though his jactitation seemed more like voluntary than involuntary motion.

I saw him first with Mr. Olding at two o'clock on the 22nd of May, the day after the attack: he lay tranquil; respiration 25; pulse 64; skin moderate. At times he gave a kind of jerk in his elbow or arm, particularly on the right side: he had frequently a violent movement of all his limbs, such as required four persons to hold him. Pupils contracted and immovable to light; he never opened his eyes willingly: his appearance was pallid and sunk.

*Radatur caput, et applicetur Embrocatio communis.*

*Habeat Enema Catharticum statim.*

May 23rd. He remained much in the same way, lying in general still and tranquil, and when roused, seeming sometimes to know his wife, but was unable to speak, and scarcely able to swallow, occasionally crying out violently till four o'clock in the morning, when he became very violent, crying out, and throwing himself about in bed, requiring several persons to hold him still: he afterwards became tranquil, but apparently more drowsy; he once or twice retched a little, but vomited nothing; his bowels open freely; all the evacuations were passed in bed.

I saw him at eleven o'clock. He was lying as in a deep tranquil sleep, on his back, looking pallid. Respiration 24: pulse 80, soft; skin soft; hands and feet rather too cool. I stood by his side some minutes, and he never moved. When I felt his pulse it seemed to rouse him, as he soon began to move about in a restless manner; then cried out very loud, threw himself about, moving all his limbs, and lying on his side with his legs drawn up.—When his wife called him several times by his name, he said in a loud voice, "Well!"—but this was the only word we could obtain. His pupils were more dilated than yesterday, and sluggish. On the whole, the powers of life seemed reduced, and he was more comatose.

*Admoveatur Emplast. Cantharidis inter scapulas, et Cataplasma Sinapis pedibus.*

24th. After the visit yesterday he seemed on the whole more composed and inclined to sleep. About four o'clock this morning, and again at five o'clock, he had most severe fits, described as quite of an epileptic character; his face was much convulsed, of a purple colour; and foam and blood passed from the mouth; at ten o'clock to-day he had another similar attack.—He appears better; lies frequently with his eyes open; and has several times so expressed himself, as to leave no doubt that he understood questions: he has this morning twice intimated, without speaking, his wish, to pass urine, and that passed is loaded with pink sediment. Pulse 80, rather weak, and not so strong as the beating of the heart at the scrobiculus cordis might lead us



to expect. Respiration 20 : pupils contract and dilate, though slowly, by the light of the candle : he moves every part as yesterday, but more naturally, and yawns frequently like one waking from sleep.

25th. His head has been kept quite cool: the blister has risen very well on his shoulders. He has been tranquil almost all night, and has latterly become very sensible, so that he answers questions distinctly, though slowly: he says he has scarcely any pain in his head; but his tongue is much swollen, and seems bitten at the edges: bowels not opened. Pulse 80, weaker: respiration 20. He has eaten a good deal of arrow-root. His manner is still quite dull, though he opens his eyes, and has been awake for several hours.

He did not sleep from five o'clock on Monday morning May 25th, till Wednesday the 27th at four o'clock; but became towards the evening of the 25th, after I had seen him, raving and delirious, so as to run about the whole neighbourhood half-naked.

On Tuesday the 26th he was taken to the workhouse, where he remained quite deranged, occasionally requiring restraint, till the Sunday week following, when he became sensible almost suddenly, and made anxious inquiries where he was, having known nothing of his removal from home, and retaining no recollection of anything which had happened.

August 2nd. He has been for some weeks able to return to his work, but has almost constantly experienced headache, particularly over the forehead, and several times in the day is affected with a slight dizziness and cloud before his eyes, with loss of memory and absence of mind, so that he is obliged for some moments to cease from his work: he sometimes talks in an unconnected manner; his countenance is pale; he has not the slightest paralysis of any part, and has had no return of a decided fit: he complains much of pain at the pit of the stomach and nausea.

I ordered him to rub the ointment of the tartrate of antimony on his neck, and regulated his bowels; but I shortly afterwards lost sight of him.

### CASE. CCLVIII.

#### *Epileptic Delirium;—excessive bony Deposit over the Sagittal Suture.*

GEORGE PILCHER, aged 21, was admitted into Guy's Hospital, June 26th, 1829. It appeared that two years and a half before, when acting as cook on board a ship, he was suddenly seized with a fit, and fell unconscious to the ground; the following day he had a similar attack; and had experienced two more since that time, being seized suddenly with a trembling in the limbs and a loss of sense. The last attack took place very shortly before his admission into Guy's; however, at that time he complained only of pain in his chest, passing from the scrobiculus cordis to the right shoulder.

July 22nd. Having been for a day or two very drowsy, and peculiar in his manner, he was found in the street quite deranged, and brought back to the Hospital.

On the 23rd, when I saw him, his face was flushed: pulse 60. He answered questions, but was obviously quite incorrect in mind: he looked with a smile on those who came to him, moving his hand as in salutation; then said, "What are they crying cherries for?"—"Give me the basket; give it to me," and so on: but the moment he was told to be still by one of his fellow patients, who was a sailor and spoke to him with authority, he was quite silent.

Detrahatur Sanguis ex Arteria temporali ad  $\text{xxiv}$ .

Habeat Hydrarg. Submuriatis gr. v. quarta quaque hora ad alvi solutionem.

Applicetur Embrocatio communis capiti raso.

24th. Only ten ounces of blood were taken from the temporal artery: he seemed but little improved: fourteen ounces more were taken by cupping. Bowels well opened, and he became much better.

Repetantur Hydrargyri Submuriatis gr. v sexta quaque hora.

25th. He has been considerably more tranquil, but at times talks incoherently, and has whistled occasionally: he is always cheerful and inclined to talk. When I saw him to-day he was in an unusually deep sleep, but spoke quite collectedly on waking, though too cheerfully and confidently: he wanted leave to go out, and then began to talk incoherently. Pulse 56: tongue clean; bowels freely open.

Repetatur Hydrargyri Submuriatis.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad  $\text{xxiv}$ .

26th. Appears much more tranquil and natural in his manner. Bowels freely open.

27th. Pulse 72: manner natural; and he says he feels quite well.

August 3rd. Dismissed cured from the present attack.

In this case, the only peculiarity observable was the elevation of the ridge of the skull along the whole length of the sagittal suture, showing an unusual deposit of bone upon the part.

## CASE CCLIX.

*Epilepsy with Blindness,—fatal; the Skull greatly thickened; Kidneys granulated; Urine coagulable.*

M—L—, a washerwoman, aged about 40, was admitted into Guy's Hospital early in April, 1830. About twelve years before, she lay-in with a child which is still living, and since that had never been regular: she had complained very frequently of headache, which had been much worse for the last six months, during which time it had often been accompanied by sickness, and was so intense that she

had been quite unable to pursue her work; she had then, again, been well for a week, and had again suffered from the pain in the head, which had always been referred to the right temple. About two days previously to her admission, she for the first time experienced an epileptic attack. When admitted, she complained of noise and confusion in the head, and she had almost lost her sight.

She was bled and cupped; and although she distinctly said that she felt no relief from these measures individually, yet she seemed on the whole to get better, and sometimes sat up, till about the 18th of April, when she had a fit of an epileptic character; and this was repeated on the 20th.

21st. She is perfectly blind, the pupils dilated, and not contracting to light: no strabismus: her hearing is perfect. She puts out her tongue as soon as asked, without difficulty; it is clean and moist. She has the complete use of all her limbs, and the sensation is perfect: she never passes either stools or urine in bed, but always tells her wants; answers questions well, but seems to forget at least the period of her own illness: it is said that she sometimes seems to wander a little in her intellects. She sleeps a great deal, but without stertor. Pulse rather quick.

22nd. When seen by Dr. Addison last night she had a great deal of difficulty of articulation, with a broken lisping speech: to-day this defect is a little less, but she is perfectly blind; and though she answers when spoken to, has a vacant way of repeating what she says, and her conversation is evidently not coherent. Though there is not any paralysis, her hands are moved in an unnatural, cramped, and rather spasmodic manner. Pulse 100, weak.

23rd. Yesterday she once or twice passed her stools in bed, but has not done so to-day. Pulse 84, weak; and she has altogether less power: she speaks like one wandering in mind.

24th. She appears to grow weaker, puts out her tongue when desired, but keeps it out for an indefinite time; answers Yes or No to questions put. She lies generally in a tranquil state, without uttering the least complaint, but occasionally cries out; her usual posture is with the knees bent, and she almost constantly moves her hands, her body, and her head slowly round in a very constrained and peculiar measured way like an automaton, with her eyes wide open in a perfectly vacant stare, so that in her sleep she looks like a person acting some slow and measured part. When taken from her bed she is able to walk, with a good deal of support; and though she never gives intimation of her necessities, still she does not dirt the bed. The sensibility of her hands is not perfect, for when I pinched them she did not seem aware of it. Tongue quite clean: pulse 84, weak: skin cool and soft.

25th. A severe fit of convulsion occurred this morning while she was being led from the water-closet. When I saw her she was lying perfectly still, with her eyes open: respiration 16: pulse 78, weak. She was unable to answer or put out her tongue.

26th. Died at half-past five o'clock this morning.

## SECTIO CADAVERIS.

The calvaria was most singularly solid and heavy, and at least three times the natural thickness; and the frontal bones, about their centres, encroached much on the cavity for the brain, the internal surface not corresponding in any way with the external surface, and the same, in a less degree, was the case with the parietal bones.

The dura mater was not unusually attached to the skull, but when torn presented many bloody drops. When the dura mater was removed from the brain, not the slightest unnatural effusion appeared; but the convolutions, more particularly on the anterior part and under the centre of the parietal bones, were flattened, so as to induce a belief that we might find effusion in the ventricles. The substance of the brain natural, or rather firm. There was about a dram of fluid in the ventricles: the choroid plexus rather more solid and voluminous than usual, but not otherwise diseased. The optic thalami and the corpora striata perfectly natural; except that some who were present thought they could perceive a slight elevation, like half a pea, more swollen than usual in the optic thalamus, near where the tractus opticus is lost: it was however a very doubtful appearance, and was exactly the same on both sides. Every other part of the commissures, the cerebellum, the pons Varolii, and medulla oblongata, most perfectly natural. The optic nerves were traced quite into the eyes; and neither in their course, nor in the retina, could the least disease be perceived: some thought the optic nerves rather too firm. The vessels of the basis were healthy, and the vascularity of the brain was natural.

The heart and lungs healthy. The liver showed marks of old peritoneal inflammation, producing some long thin adhesions to the neighbouring viscera. The omentum was fixed by one long string of adhesion to the fundus of the uterus. A very close adhesion had taken place between the left kidney, the spleen, the pancreas, and the end of the stomach, so that it was almost impossible to separate them. The right kidney was also closely adhering to the tunic, and both kidneys were hard and granulated, contracted to a size not larger than one quarter of their natural dimensions, and had many watery vesicles upon them.

The bladder contained about six ounces of urine, having but little of the urinous smell, and coagulating very freely by heat.

## CASE CCLX.

*Epilepsy, with thickened Skull and Membranes, and Disease in the Cineritious Substance.*

JOHN HITCHCOCK, a married man aged 34, the father of two children,—the youngest two years of age at the time of his death,—for many years past had complained of pains in the head, supposed to be rheumatic, and so excessive that he often said he wished to die.

In 1827 he had been exposed to a hot sun, and was attacked with an epileptic fit: he was cupped and purged freely, and recovered, continuing well till September 1827; when Mr. C. Griffith was requested to see him, on account of acute pain in the head, under which he had suffered for eight days. Thirty ounces of blood were drawn without relief, a calomel purge was administered for three successive days,—when the headache continuing, the sulphate of quinine was given for a week, with the effect of completely removing the pain. In November his headache returned, in consequence of being exposed to wet: at this time it was accompanied with bilious vomiting, yellow skin, and considerable fever; he took emetics, was purged, lost blood by cupping and by leeches, had blisters applied to his neck, and then took the sulphate of quinine, and in ten days recovered, continuing well till December the 25th, when he was seized with an epileptic fit. He was bled to sixteen ounces, and purged. He complained much of pain in his ears, and in consequence blisters were applied behind them.

January 6th. He had another fit, and at that time a slight discharge was observed from the meatus auditorius. He was cupped and purged, and on the 7th the blisters were repeated behind the ears. On the 11th, as the headache continued, he was cupped on the temples; and the ears still discharging, the blisters were kept open for several days, and the system put under the influence of mercury for a fortnight. He now began to exhibit symptoms of imbecility; the vision of one eye became imperfect, and he still complained much of headache. A blister was applied to the crown of the head, and kept open, with considerable relief.

March 29th. An intermitting headache returned: the sulphate of quinine was given. The imbecility increased, and the vision of one eye was completely lost.

April 6th. A large discharge of saliva, and difficulty of swallowing: the fæces passed insensibly. A seton was introduced between the shoulders; and the symptoms were again somewhat ameliorated, so that he could walk in the garden, though tottering and requiring aid, and often standing still, lost in reverie.

May 21st. Another fit; and from this time he never spoke: he was bled and purged, and a blister was applied to his occiput; but he continued in a state of insensibility, except when very much roused, and then in a minute or two he fell again into a state of unconsciousness; his right arm and leg became paralysed for some days before his death, and the left arm often convulsed; but at last he was unable to raise even that to his head.

June 2nd. At three in the morning he was seized with convulsions, in which state he continued till nine, when he expired.

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Mr. Griffith, to whom I am indebted for the above particulars, kindly requested me to be present at the examination of the body, which was conducted, on the following day, by himself and Mr. Streeter.

#### SECTIO CADAVERIS.

No emaciation.

On removing the scalp, the skull was observed to be slightly irregular in its surface about the vertex and lambdoidal suture; it was very thick, solid and hard in every part, particularly the frontal bone, which was at least three times the natural thickness, and very dense. The dura mater was loaded with blood in a remarkable way, and covered not only with points, but with drops of blood, and the vessels all very turgid. There was no firm coagulum in any of the sinuses.

The dura mater was united to the pia mater and arachnoid by more vessels than is often seen, and the whole surface was in a most striking state of congestion, particularly the large vessels, which were quite full of dark fluid blood. The arachnoid was thick, and in parts slightly opaque, with enough of serous effusion beneath to fill the triangular space left by the convolutions. The arachnoid and pia mater were easily taken almost entire from the brain, leaving the convolutions generally pretty natural in appearance; but on one portion a striking deviation from the healthy aspect was presented. In the situation nearly corresponding with the course of the middle meningeal artery, the colour of the convolutions was changed to a purple brown, over a defined portion, including parts of two or three convolutions, and extending from above the situation of the top of the ear almost to the middle of the parietal bone, and as the brain lay undisturbed, about half an inch in width. This depended on very numerous points, scarcely to be seen without a glass; and when the convolutions were flattened out, this change was found to descend into their deepest parts, so as to occupy a perfectly defined space on the flattened surface, not less than three inches long by two broad: the consistence of the brain was not altered at this part; and on making a perpendicular section it was evident that the dark colour went no lower than the cineritious matter in which the vessels were enlarged, so as to be visible like



fine lines. The whole substance of the brain was remarkably full of bleeding points when cut through.

In the ventricle was no unusual quantity of fluid. The choroid plexus was of a very dark colour, and felt quite fleshy, but did not appear to be actually disorganized. The most remarkable appearance was a very firm adhesion of the surface of each corpus striatum to the opposite side of the ventricle, for a space of nearly half a quarter of an inch square, and this so firm that the membrane tore from the surface in attempting to separate them. The commissures were all very perfect.

The optic nerves afforded no unusual appearance, nor could any be discovered by tracing the tractus opticus to the optic thalamus. We traced the nerve carefully to the ball of the eye, but there was no obvious disease.

On detaching the dura mater from the basis of the skull, it was quite plain that the projections of the petrous portion of the temporal bone were much more marked on the left than on the right side, and felt more scabrous; this part, on both sides, was peculiarly spongy, and on the left, the little cells looked quite transparent. On both sides this part was easily broken up, and the bones of the ears were quite perfect.

## CASE CCLXI.

*Epilepsy;—Skull greatly thickened;—Kidneys scabrous.*

SOPHIA BARNET, aged 28, was admitted into Guy's Hospital February the 2nd. She was a small, pallid, emaciated woman, and had been subject from childhood to somnambulism; and about four years ago, when in one of her nocturnal walks, she was met by her sister suddenly in the passage, and immediately fell down in a fit. From this time she was subject to violent pain of the head, and gradually lost the sight of the right eye and the power of raising the left lid. From means employed in the London Hospital she regained the use of the lid, though she has never recovered the sight of the eye. In about six months after this, she had another fit, coming on without warning, except the constant headache; she was perfectly insensible, and was said to have moved her limbs a good deal during its continuance: when she recovered, her speech was gone. By means of active depletion under Dr. Cholmeley, she regained her speech, and was permanently relieved of her headaches, though she has been subject to fits every five or six months up to the present time. About twelve months ago she had a very severe affection of the right knee, which was cured under the care of Mr. Bransby Cooper. At present there is a vacancy in her appearance, much increased by the irregular action of the eyelids, which, though they are both capable of being

closed and opened, do not act simultaneously. The right eye looks natural, but the pupil contracts more slowly than that of the left on the admission of light, and she says that she has not the slightest power of vision in it.

At the time of her admission she was labouring under diarrhoea and constant vomiting, which had gone on for three weeks in spite of all the remedies which had been employed; and she died in about forty-eight hours.

#### SECTIO CADAVERIS.

The calvaria at least half as thick again as usual, particularly on the anterior part, and it was very heavy. The membranes appeared healthy, but the whole brain was remarkably small. On cutting down to show the centrum ovale, no unnatural quantity of bloody points appeared, but the medullary matter was slightly marbled; the substance as firm as natural. The lateral ventricles contained a little more pellucid fluid than natural; and the vessels of the lining membrane, as well as the plexus choroides, were rather distended with blood. The optic nerves, carefully traced up to the ball of the eye, were both rather small; but the only unhealthy appearance which could be discovered was an unusually firm and almost inseparable adhesion of the right anterior cerebral artery to the corresponding nerves; and there was no other appearance of lesion in the surrounding parts, nor in the corpora striata, or optic thalami.

The whole of the intestines were pale, tender, and lacerable; and the mucous membrane soft, but there was no ulceration.

The liver healthy, but pale; the spleen hard. The kidneys pale, scabrous, and cutting almost like cartilage: there was no urine in the bladder, but I have little doubt that the secretion must have been coagulable.

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We have here another instance of epilepsy occurring in a person whose skull was morbidly thickened: but as the history goes distinctly to trace the first attack of the disease to a casual alarm, it is probable that the change in the structure of the skull was rather a predisposing than an exciting cause.

In this case, the morbid appearance of the right optic nerve seems to be quite sufficient to account for the state of amaurosis; for we know that causes which are only of a temporary nature, and which are, therefore, in all probability quite unaccompanied by structural change, are sufficient to produce temporary loss of vision; and there is great reason to suppose

that the peculiar dazzling of the sight, often amounting to blindness more or less complete, for a few minutes, which occurs so frequently in some individuals, and is usually followed by severe pain in the temples, depends on the circulation in this part; congestion taking place in those arteries of the base of the brain which run near, and which supply, or only make pressure on, the optic nerve. Besides this, it is very probable that the firm adhesion of the vessel to the nerve in this case was but the remnant of some more extensive change, occasioned by effusion or inflammation at the time the amaurosis first took place, but which in the course of time had been absorbed or altered; and supposing such to have been the case, and therefore more decided pressure to have been at that time made, the function of the nerve may have been so much injured as to be incapable of restoration, even when greater part of the pressure was removed; as is known in some cases to occur where external pressure has been made for a considerable time on the nerve going to a limb, and where, although the pressure has been removed, the part has remained paralysed for an indefinite length of time.

The following case, though the seizures were perhaps of a paralytic rather than a truly epileptic character, is very closely connected with the case I have just related; and it is probable that the loss of vision, and the loss of the power of raising the eyelid, depended on an analogous cause to that discovered in the last.

#### CASE CCLXII.

*Amaurosis and Loss of Power over the Eyelid, with Seizures of a mingled Epileptic and Paralytic Character.*

ANN JACKMAN, aged 32, was admitted under my care, into the Clinical Ward of Guy's, February 11th, 1831. She was married early in life, but had borne no family. About seven years ago she fell down a flight of steps, and alighting on her head, was stunned for a short time; but from this she only suffered temporary inconvenience. She continued well till seven months ago, when she began to be affected with severe pains in the head, darting across the temples; these used to come on every two or three days, and last a few minutes, so severely as almost to deprive her of her senses; but their recurrence soon became more frequent, until at length they came on several times in the day. About two months ago the sight of her right eye became indistinct, and the upper lid began to drop, and in the course of a few days the sight of the eye was completely lost and the eyelid quite paralysed. Up to this time she had undergone

very little treatment, the chief being a cupping from the nape of the neck, and some blisters applied at her own discretion. The headache continued to get worse, and to prevail chiefly at the temple on the side of the affected eye, till three weeks ago, when, without any previous warning, whilst employed about some family duty, she felt a sort of creeping sensation advancing along her extremities (chiefly the left), and she became weak and giddy; she tried to lay hold of something for support, but her hands refused to perform their office, and she fell to the ground deprived of motion, though perfectly sensible. In this state she remained about twenty minutes, and then recovered, with only a sense of weakness and faintness, which remained for the rest of the day. Three or four days afterwards she had another of these attacks, and they continued to return with increased frequency from that time, so that lately she has had two attacks a-day. Sometimes one side of the body, sometimes the other, and sometimes both sides, have been affected. Since the commencement of these fits,—now three weeks,—she has been an out-patient at this Hospital, where under the use of cupping and purges she has partly recovered her sight; but the lid remained powerless till two days ago, when at the suggestion of a friend she took a pinch of snuff; this made her sneeze violently, and immediately she found herself able to raise the lid a little. At the time of her admission there was considerable hesitation and slowness of speech; the left hand and arm felt numb and cold; her lower extremities, chiefly the left, were with great difficulty raised, in consequence of a sense of great weight and heaviness in them. She could perceive light, and the general figure of objects with the eye which was affected, but could only half elevate the lid: the headaches continued, but not so severely as before. She had suffered from dysmenorrhœa for the last year. The catamenia were at the time of admission flowing scantily.

Feb. 12th. Yesterday she was cupped at the neck to twelve ounces, and slept well: she elevates her eyelid better, and thinks she can see more distinctly, being able to distinguish the face from the neckcloth of a person standing before her: there is no headache. The left hand and arm still feel numb and cold, but the lower extremities appear to her somewhat stronger: speech more distinct. Pulse 80: tongue not clean: the bowels have acted twice.

*Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad uncias quatuordecim.*

*Habeat Pilulæ Hydrargyri grana quinque hora somni, et Olei Ricini semiunciam cras mane.*

14th. The right eye is more unclosed, and its sight so far improved that she can see, though indistinctly, the black figures on the dial of a watch: this pupil is more contracted than the other. She thinks her hand less numb, but there is still a slight trembling when she holds it out, and a little hesitation in speech. Bowels frequently and not unnaturally purged from the castor oil. Pulse 88, rather feeble: tongue moist and pale: no headache.

*Applicentur Cucurbitulæ cruentæ pone aures, et detrahantur sanguinis uncie duodecim.*

15th. Sight so much improved, that she can tell the time by the watch; the lid is more raised: the hand and arm are still numb and unsteady: no headache; but a feeling of lightness. Pulse 80, feeble: tongue clean; two dejections; urine copious.

*Habeat Hydrargyri Submuriatis grana quinque hac nocte.*

16th. Last night the affected eye was seized with a peculiar sense of burning and itching, which lasted about an hour, particularly at the inner canthus, which smarted and itched intolerably when it was rubbed. The eye is now as before; the pupil is rather more contracted than the other. Bowels open.

*Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad uncias decem. Admoveatur Emplastrum Cantharidis pone aurem dextram.*

19th. The eye looks swollen, from the flaccidity of the lid. She experienced yesterday a very peculiar smell in the nose, followed by a sensation down the throat, causing a feeling of uneasiness and trembling about the pit of the stomach, all which lasted a very few seconds. A day or two after, on account of great increased pain around the eye, sixteen ounces of blood were again taken by cupping from the temples. In a few days the numbness of the limbs was quite lost, and she was put upon the use of the arsenical solution, with pretty decided good effect. At this time, in compliance with the arrangements of our Clinical Ward, she passed from under my care, with the understanding that mercury should be employed if the further progress were not satisfactory.

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From the experience I have had in the symptoms which are generally spoken of as nervous, and are too often referred solely to the effects of the stomach, I should be inclined to say, that an approach to the condition of this patient is by no means uncommon; for, as I have just now said, the temporary or the partial loss of sight, followed by, or accompanied with, acute pain in the temples, is amongst the most frequent complaints of such patients; and I have seen this attended by slight loss of power in the eyelid, and in one or two cases by precisely the same symptoms of smarting and itching in the eye, and especially in the inner canthus, as in this case: and looking to the comparative frequency of such occurrences in persons possessing tolerable health, and to the slightness of the discoverable morbid affection in the case of BARNET (Case CCLXI.), or the cases of HITCHCOCK (Case CCLX.) or of DRAKE (Case CLXXV.), I think it probable that some cause of simple vascular turgescence and over-distention, or some very small effusion or organic change, may be quite sufficient to

produce all the symptoms of the present case. At the same time I am well aware that these slight derangements are often the consequence of disease in the structure of vessels, or may be the forerunners of very extensive mischief in the substance of the brain : thus partial defects of vision were amongst the symptoms spoken of by the late Dr. Wollaston, many years before his death, from disorganization of the brain ; and I have known attacks of imperfect paralysis and hemiplegia, though of a most temporary nature, depend on the pressure of tumours formed in the basis. I have likewise known an attack of the most perfect apoplexy from vascular turgescence, which has been completely cured by free bleeding, preceded by most acute neuralgic pains in the eye, yielding to the mineral solution, and then followed, some weeks before the decided attack, by total blindness for many hours.

### CASE CCLXIII.

*Epilepsy, coming on in Childhood without obvious cause ;—excessive Bony Deposit along the Coronal and Sagittal Sutures.*

GEORGE CANDRUN, aged 9 years, was admitted, under my care, into Guy's Hospital, June 17, 1829, the subject of epilepsy. It appeared from his mother that, two years before, he was first observed to have temporary absence of mind, accompanied with slight agitation of the lips ; and this recurred every two or three weeks. Some time after this, upon the slightest irritation of mind, his head was drawn round towards the right shoulder, his right hand became convulsed, and his eyes contorted, all which would sometimes take place several times in a day, and still continues occasionally. On the 12th of February last, he had the first severe epileptic fit, in which he was greatly convulsed for a quarter of an hour, biting his tongue and groaning ; and this was succeeded by a deep sleep for two hours. Fits of this kind have returned about once a month since that time.

June 22nd. He arose with a headache, and he had two very severe epileptic attacks, each of which lasted about five minutes ; and when I visited him he was in a most profound sleep.

I ordered this boy to take five grains of the aloes-and-myrrh pill night and morning, and gave him the sulphate of zinc, which was gradually increased to five grains three times a day ; and he used the shower-bath almost every morning. Occasionally, when the headache was very severe, a few leeches were applied to his temples ; at one time the ointment of tartrate of antimony was rubbed upon his neck. The result, after two months treatment, was decidedly favourable, inasmuch as the minor attacks were far less frequent ; but there appeared no approach to a perfect cure.

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This was one of those frequent cases in which Epilepsy comes on in childhood without any obvious reason ; still I am inclined to think that there was an organic cause in the head of this child ; for when it was shaved for the convenience of applying a wash and using the shower-bath, the course both of the coronal and sagittal sutures was marked by an elevated ridge, as if there had been an unnatural deposit of bony matter : and when we remember how frequently such morbid tendency to deposit bone accompanies Epilepsy, it is not at all improbable that some corresponding deposit had taken place internally, and given rise to the irritation.

### CASE CCLXIV.

*Epilepsy, preceded by slight convulsive motions, relieved by Sulphate of Zinc.*

WILLIAM ISAACS, aged 13, was admitted under my care into the Clinical Ward of Guy's Hospital, Feb. 2nd, 1831, affected with epilepsy. He was a stout intelligent lad, in the employment of a shoemaker ; he had always enjoyed good health, but four years ago he met with a pretty severe cut upon the forehead, which however healed, without confining him, in about a week. A month before he was first attacked with epilepsy he began to carry heavy loads frequently upon his head. The first attack he experienced was about six months before his admission, when he was suddenly seized with spasmodic fits, which lasted only a minute or two, producing quick motions of his hands and legs, without being accompanied by any loss of consciousness. These occurred at first about once a week, but they gradually increased in frequency, till they came on once or twice a day, and then lasted several minutes. The usual progress of the more severe attacks was first a peculiar motion of the hands and feet, by which they were turned inwards ; then followed an uncontrollable jactitation ; and then the complete fit,—and it was only in the middle period of the fit that he was altogether unconscious of surrounding objects. He frequently had headache after the attacks and sometimes previously, and he always thought that exertion brought them on ; they never occurred during sleep, nor in bed.

A blister was applied to the back of his neck, and a single grain of calomel was administered three times a day, for five days, when the gums became slightly affected : the bowels were kept gently open ; and on the 12th a grain of the sulphate of zinc was given three times a day. The fits continued to occur, both in their mild and their more severe form, till the 13th. The sulphate of zinc was daily increased, till four grains were taken every three hours, care being taken to keep his bowels open : and under this treatment he remained quite free from every attack for nearly three weeks, when a slight recurrence took place.

## CASE CCLXV.

*Epilepsy, attended with Aura Epileptica.—Induration and irregular growth of the Cranium,—a fungoid tumour on the Dura Mater.*

GEORGE OSBORNE, aged 37, admitted under my care into the Clinical Ward of Guy's Hospital, November 7th, 1827: is by profession a compositor, which has obliged him to work by night, attending long to one object. He says that he has been subject to headache, more or less, for above ten years, during the latter part of which time he has taken medicines, used leeches, cupping and counter irritation, with little effect;—his habits have been always temperate. In August last, while at Hastings, he fell down in an epileptic fit, which has since returned at irregular intervals, and has occasionally been accompanied by paralysis, of greater or less duration, of the right side.

He now complains of almost constant headache, and has for some time past been subject to occasional tremor of the right leg, returning daily and continuing for irregular periods, sometimes an hour or longer. Ten days ago he fell down suddenly in a fit, and was insensible for a quarter of an hour, since which the tremor of the leg has been more constant. This tremor generally begins in the foot, running up the leg to the thigh, and occasionally extending to the body and head, when he is deprived of the power of speech, but is aware of what is passing at the time. The vision is occasionally defective, and he closes the lid of the left eye involuntarily and unconsciously. Pulse 90: bowels generally costive. Sickness at the stomach is easily induced by different articles of food. His right leg is so far paralysed that he evidently drags it after him in attempting to walk. He has had a seton in his neck for the last two months, without benefit.

R Pilul. Galbani Comp. gr. v,

Extracti Colocynth. Comp. gr. x,

fiant Pilulæ iij bis quotidie sumendæ.

Habeat Pulver. Valerian. ʒj ter die.

He had frequent returns of the tremor the first few days after his admission, and on the night of the 12th had a severe fit, preceded by cramp in the calf of the leg, extending up the back of the thigh, and the peculiar cramp-like sensation extending to the body and the head. The fit then came on, and he remained insensible for about a quarter of an hour, during which time he foamed at the mouth and bit his tongue. The urine has a milky appearance, becoming clear by heat, and not coagulating. The bowels have been freely opened by the pills. On the following night he again had an epileptic fit.

15th. Yesterday evening, at half-past six o'clock, the pain and tremor of the right leg returned, and he felt assured that the fit was coming on; when a tourniquet, which had been placed in readiness at the bed-side, was applied at the lower part of the

thigh, with the complete effect, apparently, of putting a stop to the fit. The same occurred for two or three successive nights; for he found so much relief that he kept the tourniquet constantly loose on the limb, screwing it tight when he was roused by the painful sensations usually preceding the fit.

22nd. Last night he suddenly felt in the leg the sensation which precedes the fit, and the pressure by the tourniquet only retarded it, as the same sensation commenced from the right wrist a quarter of an hour afterwards, and was followed by the fit. The next afternoon, between two and three o'clock, he felt the sensation in the leg as if the fit were coming on; it was stopped by the tourniquet, and he soon after felt it in the arm, round which a ligature was tightly applied; the sensation gradually diminished, and the fit did not come on. Pressure however, after a time, seemed to have less effect, and certainly sometimes failed altogether.

Various remedies were tried, besides strict regulation of the bowels and occasional small depletions from the head. Valerian was given in doses of a dram three times a day; sulphate of zinc in doses of four grains; prussiate of iron in doses of half a grain three times a day, continued for a week or ten days; but all without the least effect as far as I could judge. Extract of hyoscyamus was also given at bed-time.

The periods at which the fits returned were however so irregular, that it was difficult to say whether medicines were acting upon the disease or not: he seldom passed twenty-four hours without some of the peculiar sensations, either tremors or cramps, which frequently preceded the attacks; but he was sometimes a week, and sometimes nearly three weeks, without any actual or severe seizure.

December 22nd. After being nearly three weeks free from fits, he had three this morning, which lasted about half an hour; and when visited two or three hours after, he seemed to understand questions very imperfectly. When desired to move his arm or leg, he put out his tongue, and so on. Pulse 76, full; skin hot; tongue clean; he complained of pain and tenderness when pressed on the left hypochondrium. His stools were about this time frequently very deficient in bile, and he took, with good effect, mercurial purgatives.

His headache continued, often with severity, but almost always a source of complaint, and generally referred to the left side of the head, sometimes to the forehead, just over the left orbit. This led to the occasional use of leeches, or small cuppings, which sometimes gave relief, at others seemed to have little effect.

Jan. 6th. At one o'clock P.M. he had a fit, in which the right arm and leg were affected, but he was not deprived of his senses. After this was gone off he was unable to raise his right arm or protrude his tongue, and was unable to articulate, though he understood questions.

*Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ʒviij.*

*Sumat Hydrarg. Submuriat. gr. iij statim, et Haustum Sennæ postea.*

7th. Had a fit after the cupping, and it continued for an hour: he found no relief

from the loss of blood. Pulse 96, full : tongue furred at the base and red at the tip : bowels open : abdomen hard and tender : memory more impaired.

*Applicentur Cucurbitulæ cruentæ Scrobiculo cordis, et detrahatur sanguis ad uncias sexdecim.*

*Sumat Hydrarg. Submuriat. gr. iij, et Haust Sennæ.*

8th. The cupping relieved the tenderness, and he slept well. Pulse 96, rather full ; three or four pale dejections.

*Hirudines xij temporibus.*

*Hydrarg. Submur. gr. iij, et Haust. Sennæ.*

9th. No fit : dejections more healthy : tongue not so red at the tip : complains of general pain in the head : pulse 76, full.

10th. Headache is more particularly on the left side. Evacuations of a pretty good colour.

*Applicentur Hirudines decem parti capitis dolenti.*

*Habeat Hydrarg. Submur. gr. j, et Pulv. Antimon. gr. iij omni nocte ;*

*Julepum Ammon. Acetat. ter die, et Haustum Sennæ pro re nata.*

11th. Found slight temporary relief from the leeches.

*Applicetur Emplastrum Cantharidis nuchæ.*

12th. Head very little relieved : no fit.

*Infricetur Unguentum Antimonii tartarizati capiti raso.*

In the course of six days a copious crop of pustules was produced on the scalp by the ointment, and the headache was pretty decidedly relieved on their first appearance ; this was however, succeeded by what he described as a sense of heaviness ; and after a short time, the pain, more particularly over the left orbit, returned.

He remained under treatment till the middle of February, and then, finding no permanent relief, he quitted the Hospital.

This patient was afterwards admitted, on the 23rd of April 1828, into St. George's Hospital, under the care of Dr. Hewett ; to whom I am obliged for the following particulars of his case to the time of his death, and of the appearance discovered in the brain.

"After his admission into the Hospital, the fits recurred as frequently as he had stated, and exhibited the usual characteristic symptoms of epilepsy ; a seton in the neck, cold applications to the head, frequent cupping, purgatives and sedatives were employed : under such treatment the fits became both less severe and less frequent, until on May the 18th he was attacked with a fit, which was followed by coma, and paralysis of the right side ; venæsection rescued him from this state, but left him labouring under a difficulty of articulation ; the blood obtained was cupped and buffy : in two days afterwards he experienced temporary loss of sight, and brief

accessions of double vision; the pupils of the eyes, however, remained contractile, and of their natural size; but he never varied in referring the seat of his pain and confusion to a portion of the brain underneath the os frontis; the skin too of the forehead felt hot; but the pulse, in consequence of the previous repeated depletion, had become very soft and feeble. As thus there was but too strong proof of the existence of organic mischief within the head, and but little prospect of my being able to exercise further active depletion for the purpose of retarding its progress, I put him under the influence of sedatives, with the view of at least diminishing the sensibility to the local irritation; the cause of which, it was obvious, could not be removed. The following prescription was given May 15th.

R Acet. Morphiae gr.  $\frac{1}{4}$ ,  
 Liquor. Ammoniae Acet.  $\mathfrak{z}$ ij,  
 Syrupi Simplicis  $\mathfrak{z}$ j,  
 Aquæ distillatæ  $\mathfrak{z}$ j, M.

fiat Haustus sextis horis sumendus.

While using this draught, and occasionally applying a few leeches, he remained nearly free from fits until June 14th, when a severe epileptic paroxysm attacked him during his sleep: he was then again cupped; but afterwards, the morphia having apparently lost its power of controlling the recurrence of the fits, he began the use of the following pills.

R Argenti Nitratis, et Opii aa gr. j,  
 Mucilag. Acaciæ q. s.,

ut fiat Pilula sextis horis sumenda.

Under this plan of treatment he obtained a truce of fourteen days from the return of the fits; but ultimately sunk the victim of them on October 19th, 1828."

#### SECTIO CADAVERIS.

"The cranium was remarkably thick; its exterior presented an irregular surface like that of embossed work; and from its interior, on either side of the longitudinal sinus, there arose two convex prominences (two inches in length, one inch in width, and about one-sixth of an inch in height,) producing corresponding depressions on the anterior and middle lobes of each hemisphere of the brain (Plate XXXIX. & XL.). The basis of the cranium also exhibited some more than usually sharp ridges, but no decided spicula. From between the under surface of the dura mater and its investing arachnoid membrane, there grew up a tumour of the consistence of softish cheese, and of the size of a small almond; in the course of its development it had pushed forward the two laminæ of the arach-

noid, the pia mater, and the cortical substance of the brain, without, however, producing any ulceration or softening of these parts, and had thus indented itself into the upper part of the posterior lobe of the left hemisphere of the brain. The substance of the brain was of its natural degree of firmness. The thoracic and abdominal viscera presented no deviations from their natural appearance, worthy of notice."

In this case the most decided aura was experienced in connection with organic disease within the skull.

### CASE CCLXVI.

*Epilepsy,—fatal; Disease of the Skull and Membranes; Anasarca, with coagulable Urine, and highly granulated Kidneys.*

JAMES SOMERVILLE, a shoemaker, aged 55, was admitted under Dr. Cholmeley, into the Clinical Ward of Guy's, November 28th, 1830: he had borne a good character, and was, no doubt, a very sober man. He injured his skull when a boy in consequence of a fall on his head from a height of about forty feet; and several fragments of bone were removed by Mr. Key, in this Hospital, seven years ago, in consequence of disease and exfoliation. There are now on the skull two depressions, each large enough to admit the point of a finger: the one situated over the junction of the sagittal and lambdoidal sutures; the other on the right parietal bone, about one inch and a half distant. Since the removal of the bone he has been subject to epileptic fits, which at first were very frequent,—three, four, five, or six in the day; but they have gradually diminished, and latterly he has been six months without any. Last week he had two fits in one day: they are always preceded by severe headache. About a month ago, in the absence of fits, his head ached severely, and he felt generally ill; his ankles began to swell; and now the cellular membrane of his whole body, even that of his face, is puffed up with serous effusion: the scrotum and penis are also singularly distended. He has had pain during the last month in the small of the back, and a tightness across the upper part of the chest. His bowels have been in a relaxed state for a long time; although not relieved to-day. Urine albuminous.

29th. He had a fit of epilepsy last night.

30th. Complaints of dull headache at the part where the skull is depressed. He was ordered to be cupped to ten ounces from the neck.

From this time to the 7th of December, it was observed that he started often in his sleep, and that he very frequently bit his tongue; and he complained of a severe oppressive pain in the head.

Dec. 9th. He dozed much, and was frequently roused by convulsive motions of the whole body.

Fiat Venæsectio ad ℥xij.



10th. The blood was buffed and cupped. He had two fits during last night, and his mouth was slightly drawn to the left side; but there was no other mark of paralysis.

Fiat Venæsectio ad  $\text{℥xij}$ .

11th. Blood slightly buffed and not cupped.

In the morning of the 13th he had a fit which lasted about half an hour, and he began to pass his fæces unconsciously in bed. On the 15th he had three or four fits, and became the next day insensible, passing from one fit into another; and on the 17th, after a very severe fit, he died.

#### SECTIO CADAVERIS.

General anasarca, so that when the integuments were turned back, fluid issued out. On the outside of the skull two depressions were to be remarked, in which the external table of the bone appeared to have been lost. On raising the calvaria, a distinct membrane was left behind attached to the bone, about half the usual thickness and strength of the dura mater, but rough and woolly in its texture: this was more or less spread over the whole calvaria, but was particularly strong near to the places where the skull had been injured. On stripping this membrane from the skull, the bone was found to be rough and porous; and in two places corresponding to the situation of the external injury there was evidence that the mischief had extended to the inner plate, but that it had been repaired without leaving much inequality on the internal surface. The dura mater was found to adhere on the left side to the arachnoid over the greater part of its extent, though not so firmly but that it could be removed without injury to either of the membranes: the adhesion was strongest at the lateral part of the middle and anterior lobes. There was a small plate of bone in the anterior part of the falciform process. The arachnoid was remarkably thick and opaque, and the contiguous surfaces on the internal sides of the hemispheres adhered so firmly, that they could with difficulty be separated on their anterior parts. The arachnoid and pia mater were detached in one large, firm, opaque sheet from the right hemisphere; but when it was attempted to do the same from the left, it was soon found, that on the whole lateral portions of the hemisphere, particularly on the middle and anterior lobes, the adhesion of the membrane to the cineritious substance was so complete, that all the tops of the convolutions tore away with it; and the cineritious matter was completely removed, the portion of brain immediately under

being rather harder and more brittle than the rest. The convolutions at this part were very shallow, and seemed to adhere together, the whole of that portion of the hemisphere thus bearing a very unhealthy aspect.

The substance of the brain was not unhealthy; but in the ventricles there was a slight accumulation of clear fluid; and on the posterior part of each choroid plexus was a round mass, of bony hardness, that on the right side of a dark red colour, adhering slightly to the upper part of the ventricle.

There was nothing very remarkable in the basis of the skull; and the pituitary gland was rather small. The lungs did not collapse when the chest was opened, being slightly emphysematous and loaded with œdematous effusion, which poured out in streams from the large bronchial tubes when the lung was squeezed. The heart natural; the aorta large.

The liver was pretty natural, but slightly inclining to granulation; the spleen small, and its external surface rough with slight cartilaginous deposits. The intestines tolerably healthy. The kidneys presented a most illustrative specimen of the hard granulated change which those organs undergo.

#### CASE CCLXVII.

*Epilepsy from Injury to the Head, with Exfoliation.*

JANE FRY, aged 35, was admitted into Guy's Hospital, March 17th, 1830, on account of diarrhœa. It appeared that twelve months before, she had received a blow upon the head, which cut the scalp. This had never healed, but exfoliation of the outer table was still going on extensively, and chiefly towards the right side, and for the last six months she had been subject to epileptic fits, in which her left side was always most affected, and the leg more than the arm. For the last three weeks she had suffered from constant purging. The remedies she took were entirely directed to the regulation of the bowels; and when that was effected she left the Hospital.

#### CASE CCLXVIII.

*Epilepsy after a Blow on the Head, accompanied by Aura Epileptica.*

R—C—, aged 30, was admitted into Guy's Hospital under my care, April 28th, 1830.—The account he gave was, that nearly two years ago he fell from a cart upon his head, and was brought to this Hospital in a state of insensibility, and had since been subject to occasional fits of an epileptic character. He had experienced a fit three days

before his admission, when, as on former occasions, the left side of his body became weak and almost powerless, with greatly impaired sensation; he lost his sight for several hours, and bit his tongue. Since that time he has had two fits of a similar kind.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad ℥xij.

Radatur Caput, et applicetur Embrocatio communis.

Admoveatur Emplastrum Cantharidis nuchæ.

Habeat Misturam Magnes. cum Magnes. Sulph. bis die.

May 9th. Has had some slight returns of fits. They generally begin by an agitation of the left leg, accompanied by a peculiar sensation which passes up the thigh and body till it reaches the head, when he loses his recollection, is convulsed for about an hour, then sleeps for half an hour, and awakes quite unconscious of what has happened to him.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad ℥xij.

Habeat Mist. Camph. et Infus. Sennæ pro re nata.

21st. Fiat Setaceum nuchæ. Habeat Zinci Sulphatis gr. j secunda quaque hora.

June 11th. He takes the pills regularly in the day, and once or twice in the night.

14th. Has been longer free from fits than at any time during the last four months.

18th. The dose of the sulphate of zinc has been gradually increased to eight grains every two hours, and he now begins to complain of nausea: has been free from the shaking of the leg for a fortnight, and has had no return of the fits.

Sumat Zinci Sulphatis gr. v secunda quaque hora.

July 2nd. Has again applied to the Hospital, stating that he has had a return of his complaint, which was brought on by seeing another man in a fit. Although the same remedy again relieved him, it is probable he will always continue subject to relapses.

In this case we have another exemplification of the frequently observed fact, that in cases where the disease is in all probability entirely dependent on mischief going on within the cranium, the first indications of the attack are felt in some distant part of the body.

## CASE CCLXIX.

*Epilepsy,—fatal. Fungoid Tumour of the Dura Mater.*

IN passing through Charity Ward of Guy's, December 13th, 1830, I was attracted to the bed of a patient by a kind of sobbing sound with a half-snoring noise, and I found her strongly convulsed, lying on her back with her face turned to the left side. She was violently agitated, like a child in convulsions, her head drawn back in twitches, her eyes turned to the right side, her legs and arms, more particularly the latter, stretched

with convulsive catches. When I went to see her an hour after, she had just expired.—On inquiry from the Sister of the Ward, it appeared that this woman had been night nurse about four months, and had made frequent complaints of headache, for which she applied water to her forehead; and about a month before her death, was found one day at the sink, where she had been for water, quite motionless, but she soon recovered, and was always a very efficient nurse. On Friday the 5th, she had said that she felt giddy, and had applied vinegar and water to her forehead, and taken purgative medicine: she became better, but had one or two slight returns of giddiness. On Monday the 8th she seemed quite well, ate her supper as usual, which was always with rather good appetite, and was left sitting in the arm-chair by the fire. At half-past twelve a noise was heard, and she was found struggling on the ground, with her head under the grate, against the bars of which she had struck her forehead, which afterwards occasioned a black-eye. In about half an hour she recovered, so as to explain that while rising to pour out some water, she became giddy, and fell senseless to the ground.—She went to-bed, and in the morning rose so well that she made her bed in the usual way, having the perfect use of her legs and arms. About nine o'clock that morning (Tuesday the 9th) she fell into another fit; and till the time of her death had a succession of them, being perfectly sensible between the attacks, but confined to her bed. It appeared upon inquiry that she had previously been in St. Bartholomew's or some other Hospital, on account of similar fits.

#### SECTIO CADAVERIS.

Rather a stout-made woman: ecchymosis round the right eye. A bruise on the right side of the forehead, with ecchymosis beneath the scalp, of the size of a half-crown. Some marks on the hairy scalp about the same part, which appeared the result of some remedial application formerly used. The left foot drawn inwards and extended, as from convulsion; the right foot in the same way, but less complete.

On removing the calvaria, the dura mater appeared more flaccid than usual, and on the anterior part of the right side a number of bleeding vessels were seen with small drops of blood, where they had been divided from the calvaria; this appearance was not presented at any other part, though the whole was rather vascular. Raising the dura mater on the left side, the arachnoid had a considerable quantity of serum beneath it. On the right side the same was observed; but after raising a very small portion, about one fourth of an inch from the division of the hemispheres, the dura mater was firmly glued to the arachnoid, and this again to the substance of the brain: this adhesion extended over a space about the size of a crown-

piece or more, and on using a little force to draw up the dura mater, fungous granulations of the size of peas came into view, apparently rising from the arachnoid of the dura mater, for it was not difficult with the back of the scalpel to detach them from the fibrous dura mater, while at the same time the arachnoid covering the brain was entire. Such was the state of those granulations first raised; but as we proceeded further, the fungous growths were more firmly attached to the surface of the brain, which tore up with the granulations. None of this disease, however, went more than one fourth of an inch deep: and in the centre, on cutting towards the dura mater from below upwards, the medullary mater for the depth of half an inch and about the same extent was quite softened down and infiltrated with serous fluid, which seemed to divide the fibres and produce a little aqueous softening without any defined cyst or margin. On taking off a slice of the brain, the bloody points were very numerous, and the cortical substance was everywhere vascular. The ventricles contained too much serum, which was very limpid; and the vessels on the lining of the posterior cornu were of unusual size: in the plexus were a few small vesicular bodies. The cortical part of the corpora striata exhibited a most unusual red mottled appearance. In the basis a considerable quantity of serum had accumulated. (Plate XXVI. Fig. 1.)

The lungs healthy: the pericardium perfectly transparent, indeed in a very unusual degree. Heart healthy. Liver healthy, but near its surface having three or four very small round bodies not larger than a shot, of a nearly cartilaginous character externally, and internally a little bony. The other viscera healthy; but there were found in the pelys two small oval bodies rather larger than peas, perfectly polished on their surfaces, one hard, the other soft, but quite loose, without the least sign of having been attached.

#### CASE CCLXX.

*Epilepsy with Sopor;—the longitudinal Sinus obstructed by an exuberant growth of the Glandular Structure on its inside.*

J. P. was brought to Guy's Hospital about eight o'clock in the evening of September the 5th, and placed under the care of Mr. Morgan. Nothing was said about him by the persons who brought him, except that he had fallen from a height down stairs, and that the only words he had spoken were to complain of pain in the back. I saw him on the 6th, at which time his state was reported to be very little changed: he lay apparently

quite senseless, with his eyes partly open. Nothing which could be said to him had the least effect in rousing him; nor did he seem to suffer anything from pinches inflicted on various parts of the arms, legs, and body: his countenance very nearly natural, but a little suffused. Pulse 80: respiration 16: tranquil and noiseless. I was told that he occasionally used his limbs; but when I saw him he was quite immovable, except that when I touched his face he seemed inclined to flinch and draw his eyelids together.

In this way he lay till towards the evening, when he became greatly convulsed, foaming at the mouth; and died in this dreadful state about ten o'clock the following morning.

#### SECTIO CADAVERIS.

The vessels of the dura mater were slightly more distended than natural. On removing this, a small ecchymosis was seen, not above the size of a sixpence. On laying open the longitudinal sinus, a very peculiar appearance presented itself, from the unusual number and size of the glandulæ Pachioni, which resembled a fungous growth. (Plate XXI. Fig. 3.)

#### CASE CCLXXI.

*Epilepsy with Paralysis of the Nerves of Motion in the left, and of those of Sensation in the right lower extremity.*

The following statement was drawn out at my request by Mr. R. Camac, at the time a pupil of the Hospital, and I had frequent opportunities of questioning the patient.

WILLIAM PADDLE, æt. 27, a stout well-made man, of light complexion, states that for about five years he was a horse-soldier. He always enjoyed excellent health till the latter end of 1827; at which period, after being on guard, he was suddenly and without any warning or assignable cause, seized with an epileptic fit; in which, after instantaneously falling, he foamed at the mouth, and became black in the face, but was not convulsed. These fits have continued more or less frequently, varying in number from two in a week to one in about five weeks: they generally come on without any premonitory symptom, but sometimes a peculiar sense of numbness rising up his legs has preceded the fit. Neither at this nor any subsequent period had he painful sensations in his head, nor in any other part of his body. He was occasionally bled and purged.

Eighteen months ago, (i. e. four from his first attack,) when he was in bed, numbness and loss of motion occurred in his right leg and loins: and in twenty-four hours afterwards in his left lower extremity also; his urine and fæces passed involuntarily.



The paraplegia thus established continued for eight months, although he was cupped, and setons and issues were made in his neck and loins, other remedies being also used. Under this treatment he partially recovered the power of motion in his left leg, and then the power of sensation; and afterwards motion alone was regained by his right extremity. His bladder retained a little urine, but he had little or no command over it; and his fæces were not evacuated involuntarily, unless his bowels were much relaxed. He thinks that the assiduous use of warm-baths, as soon as he could crawl to the bath-room, greatly contributed to this partial amendment.

In this condition he was discharged from the military hospital at Chatham about six months ago, his fits still occurring now and then. Three or four months since he was in St. Thomas's Hospital, and was there frequently cupped on the loins without any benefit.

On April 8th 1829, he was admitted into Guy's Hospital.—He appeared in robust health; his eyes were slightly suffused; he denied having any painful sensations in any organ. His fits were less frequent than formerly; pulse natural; tongue clean, and his chylopoietic and other viscera appeared healthy. He had a very brief warning when his rectum was about to evacuate its contents, and the same with regard to his bladder. The motion in the left leg and hip was very imperfect, the sensation being unimpaired; while in the right leg he had complete motion, with sensibility to considerable pressure only. His leg might be pricked, unobserved by him, without producing any indication of sensation: but if the needle were pushed in deeply, a slight convulsive action only of some muscles occurred, not at all like a retraction of the limb from pain.

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In this case there is every reason to suppose that some organic change is taking place within the cranium: the paralytic condition which remains after the attack, and which never entirely subsides, leads to this conclusion, although the peculiarity of the symptoms with regard to the partial loss of motion in some parts, and the almost complete abolition of sensation in others, renders it exceedingly difficult to form a rational conjecture as to the seat of the injury.

#### CASE CCLXXII.

*Hysteria Epilepsy removed by correcting the condition of the Bowels.*

MARY ANN TINTON, aged 16, was admitted into Guy's Hospital, November 24th, 1823. The catamenia had never appeared, but she frequently complained of pain in the loins coming round to the lower part of the abdomen. About twelve months ago, without any apparent cause, she was seized with a fainting fit; and about six months after, she had a severe attack of sneezing, with giddiness in the head: this was immediately followed

by fainting which continued for some minutes; and these fits of giddiness and fainting have returned at intervals ever since. One month ago, falling in one of her fainting fits, she struck her head rather severely against a stool, and a fortnight after experienced a fit attended with much convulsion, and bearing an epileptic character. On the first day of her admission into the Hospital she had three fits, and on the following day four, in all of which she was more or less severely convulsed; but occasional sobs and the hysteric globus, of which she complained while they were coming on or going off, sufficiently marked their nature. On her first admission she was ordered a dram of the rectified oil of turpentine and six drams of castor oil, which had produced several loose knotty and unnatural dejections; and as she now complained of pain in the head,—as her countenance was flushed and her eyes heavy and suffused, she was ordered to be cupped at the nape of the neck to ten ounces, to take a dram of the aloes wine three times a day in camphor mixture, and to bathe her feet every night in warm water rendered more stimulating by mustard meal.

26th. Four epileptic fits, in which she was much convulsed, occurred yesterday in quick succession, accompanied by symptoms of hysteria and preceded by severe headache. The cupping afforded temporary relief to the head, and her fits to-day have had less of an epileptic character.

*Repetantur Medicamenta.*

27th. One fit last night, preceded by globus. She complains of severe headache, of giddiness, and sickness at stomach. No dejection. Pulse 80, of good strength.

*R Tinct. Hellebori nigri ℥xxx,*

*Aquæ Pulegii ℥j,*

*Syrup. Aurant. ʒj M.*

*Fiat Haustus bis die sumendus.*

*℞ Olei Ricini ʒvj vespere.*

*Repetatur Pediluvium.*

28th. Still complains of some pain in the forehead. Two fits last night, succeeded by vomiting. No dejection. Tongue moist and natural. Pulse 80.

*Habeat Pilul. Aloes cum Myrrh. gr. x omni nocte.*

*Repetantur Medicamenta.*

29th. One knotty dejection; pain of forehead; nausea. Pulse 72, weaker: skin cool: countenance more animated.

*Repetantur Medicamenta, sed augeatur Tinct. Hellebori ad ℥xl.*

30th. More headache; sickness at times; several fæculent dejections, with undigested matter. Pulse 72.

*Repetantur Medicamenta.*

Dec. 1st. Felt faint several times yesterday, but has had no fits; pain of the head gone: two light fæculent dejections.

Augeatur Tinct. Hellebori ad ʒj bis die.

Repetantur Pilulæ omni nocte.

2nd. No headache. A good night; several pale fæculent dejections: appearance much improved: the medicine she thinks produces sickness.

Sumat Julep. Rhei Compos. ter die; et repetantur Pilulæ.

4th. Two yellow dejections. Pulse 90: no complaint.

Adde Tinct. Hellebori nig. ʒfs sing. dos. Misturæ.

Repetantur Pilulæ.

5th. No return of giddiness: three copious dejections: no complaint.

Repetantur Medicamenta.

She continued to take the same medicine; and after a few days, having no complaint, she quitted the Hospital, before, however, the catamenial discharge had been established.

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In this case, the hysteric form of epilepsy connects itself immediately with the deficient action of the uterus as a predisposing cause; while, by correcting the sluggish and unhealthy state of the bowels, the symptoms were completely relieved, although the uterine system was not excited to its natural functions. I was induced to employ the hellebore in this case from the statements of Dr. Prichard in his valuable work on Nervous Diseases.

### CASE CCLXXIII.

#### *Epileptic Fits from abdominal Irritation, followed by Paralysis.*

TITUS PASQUE, aged 20, was admitted into the Clinical Ward of Guy's, January 5th, 1825. It appeared that he had been for several years subject to tape-worm, for which he was in the habit of taking spirits of turpentine; and that having experienced severe pain in his bowels about three months ago, he had recourse to the same remedy, but it produced no action on his bowels for five days, during which time he had difficulty in passing his urine, and suffered several epileptic seizures, under which he gradually lost the use of both his legs. The use of the left returned after a few days, but he had no power over the right: the sensation was perfect, except some occasional numbness. His fits returned frequently, and he had six on the day of his admission. He had of late occasionally repeated the turpentine, with the effect of bringing away large portions of the tape-worm.

After his admission an ounce of spirits of turpentine was given, followed in three hours by six drams of castor oil, which brought away a good deal of the tape-worm: this was repeated after two days. For about a week he took five grains of blue pill every

night, but his mouth becoming sore, this was suspended. Great attention was paid to procure daily copious evacuations, and from the 11th to the 25th he had no return of epileptic seizure. He took draughts made with the balsam of Peru; and on the 5th of February, when he left the ward, had remained free from fits, and was gradually but slowly recovering the use of his leg.

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In this case, the connection between the irritation of organs distant from the head and the epileptic fits was well marked; but it is not quite evident whether the presence of the tape-worm or the retention of the spirits of turpentine irritating the urinary organs as well as the intestines, was the immediate cause; the same remedy, however, when made to act on the bowels and carry off the *tænia*, appeared to give decided relief.

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When we review the foregoing cases of Epilepsy, we see that in almost all of them a state of cerebral congestion has existed as a more or less essential part of the disease, and has even been demonstrable after death. In many, no other ailment could be traced; while in others, that congestion has depended upon irritation from obvious disease within the skull, or from more distant irritation acting upon the brain. Where congestion has been the prevailing cause of the disease, large depletion, however much it might be necessary to ward off present danger, seems to have been injurious when often repeated, rendering the attacks more frequent and more severe; while, on the contrary, very moderate depletion, coupled with other remedies, and more particularly with purgatives, and the habitual regulation of the bowels, has been followed by more favourable results.—We find amongst the foregoing cases, three in which the mental affection subsequent to the attack has assumed the form of a maniacal paroxysm, which has afterwards passed away completely, requiring more or less depletion according to the symptoms and general state of body with which it has been combined. We have no less than eleven cases in which there is evidence of a direct morbid condition of the brain or its membranes, or of the skull; in six of which, the bone has been obviously altered in its texture and growth: in some, the membranes have been thickened: in three, the disease has originated in blows and injuries to the skull; in two, there have been fungoid tumours growing from the dura mater; and in one, there was a great increase of the natural glandular structure within the longitudinal sinus, apparently giving rise to conges-

tion in the veins: but in none of all these has the organic change extended into the medullary substance; and in most it has penetrated little deeper than the membranes themselves. In one case, the fits depended upon uterine, and in one upon intestinal, irritation; and similar instances might have been multiplied, but they are often unsatisfactory, in as far as it is probable that in many such cases some organic cause exists within the brain, which determines the extent and character of the effect produced by such distant sources of irritation.—In two or three cases the epileptic fits have been ushered in by the distinct occurrence of the *aura epileptica*, and in these there has been reason to suppose that decided cerebral mischief existed; in one, the examination after death proved this fact.

In three of the cases mentioned in the present chapter, the fatal disease has been connected with coagulable urine and granulated kidneys;—to which subject I have already referred, page 446.

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#### CONVULSIONS OF CHILDREN.

The convulsions of children can scarcely be looked upon in any other light than as epileptic paroxysms; and they are found to arise from causes as various as the genuine epilepsy occurring in other periods of life. It is, however, satisfactory to know, that where the cause is not of a fixed or an organic character within the head, the most severe attacks of this kind in childhood will frequently pass off, without apparently leaving any tendency to the establishment of the habitual disease. It would appear, that the general irritability of the infant's frame is sufficient, without any other peculiar predisposition, to favour the production of the convulsive paroxysm, and that as the constitutional strength increases, the liability to such attacks wears completely away.

The exciting causes of infantile convulsions are very numerous. I have known an instance in which the effusion of nearly two ounces of blood on the surface of the brain during birth, gave rise to incessant convulsions, which destroyed life in about twenty-four hours. Tumours in the brain, and effusion into its cavities, will also produce convulsions; but much more frequently vascular congestion is the exciting cause: thus in pneumonia, in the bronchial affections of infants, and in whooping-cough, the

congestion within the head seldom fails to produce convulsions. The excitement of febrile diseases,—as in the coming on of small-pox, or in the course of scarlatina,—is the very frequent cause of convulsion. The irritation of teething and of worms, or even of burns and external injuries will induce convulsions, as will also sudden alarm. Another cause of convulsion has been sometimes traced in the deficient supply of blood to the head, as in cases of inanition and exhaustion, resembling the epilepsy induced occasionally in adults by bleeding.

These exciting causes of the convulsions of children will be perceived to resemble very much the usual exciting causes of epilepsy,—allowance being made for the irritability of the infant's frame; nor are there any circumstances in the progress of the attack which enable us to draw a distinct line between the two conditions, except the very frequent occurrence of convulsions in children, without leaving either a tendency to return in after life, or any trace of the attack when it has passed away. I have seen children for six or eight hours convulsed and senseless from abdominal irritation recover completely in a few hours, and grow up to manhood without a symptom of disease. I have known a child from the time it first began to cut its teeth, suffering unceasing convulsions, despaired of from day to day, and from week to week; yet, after the lapse of several months, recover completely on the appearance of its molar teeth. It does, however, on the other hand, occasionally happen that repeated convulsions impair the faculties, or are followed by a tendency to epileptic seizures during the remainder of life, or leave traces of paralytic infirmity of a more or less durable character. In such cases, it is probable that slight lesions have been produced in the brain during the excessive congestion of the convulsive paroxysm, or that the vessels have been so distended as to be unable to recover their healthy tone and condition.



## CASES

### ILLUSTRATING THE SYMPTOMS OF TETANUS.

TETANUS often affords the purest example of nervous derangement depending on irritation communicated to the brain from some distant part. By far the greater number of cases in this country originate in injury done to the extremities of nerves; and though sometimes that injury is still obviously unhealed, yet in many cases it is apparently past, and is forgotten, till a train of symptoms arises as peculiar as it is alarming.

At first the patient suffers a slight feeling of indisposition; he thinks he has taken cold, and perhaps he has; the muscles of his neck grow stiff; he feels an obstruction in swallowing; he fancies that his throat is sore: he finds it difficult to open his jaw, which is often first perceived when the physician wishes to see his tongue; the muscles of his face contract; his brow becomes wrinkled; his eyes are drawn by the action of the orbiculares: and the corners of his mouth are pulled down, particularly in the effort of opening his mouth. He now feels other muscular spasms; he is drawn for a moment backwards; the abdomen becomes rigid; the pulse is often hurried and irregular; the respiration is embarrassed; he complains of pain at the pit of his stomach, increased to agony on each recurrence of the spasms; he is bathed in perspiration; he is marked with torment; the spasms act upon him with increased violence; he is worn out with suffering, he becomes delirious, and he dies: or a more sudden termination is granted to his miseries; the disease fixes on the muscles of respiration, and brings on instantaneous death.—All this may be the work of four-and-twenty hours;—it may be the work of as many days. Sometimes, on the contrary, the disease remains mild for several days, abates, and passes off. In fatal cases, examination after death may show nothing; and where it has shown disease, it has been seldom more than a doubtful evidence of partially increased vascularity in some very limited portion of the nervous structure, either that immediately connected with the injury, or some part of the medulla oblongata and spine.

Ignorant, as we confessedly are, of the precise nature and source of the nervous irritation on which tetanus depends, little can be said of the different modifications to which it is liable in the forms which it assumes, and from which it has derived various appellations; but the frequent prepon-

derance of the action of the dorsal muscles, producing opisthotonos, is readily explained by considering their great mass, and the energy with which they are always acting, owing to the constant demand made upon them in every position and motion of the body. It is likewise probable, that where the disease affects one side of the body decidedly more than the other, this arises from some habitually weakened energy in the antagonist muscles of the opposite side.

There are few diseases of the treatment of which less is known with certainty than this; and a stronger proof of the unsettled state of practice with regard to it cannot well be adduced, than by stating the fact, that in the periodical publications of a single month within the last two years, cases were brought forward by four different practitioners to claim the merit of curing cases of tetanus:—first, by large doses of the subcarbonate of iron; secondly, by ptyalism; thirdly, by applying caustic potash along the spine; and, fourthly, by general bleeding. Under such variety of opinion, it is impossible to speak with confidence of any remedial means which may appear to have been successful in one case or another, as we must naturally feel fearful lest we should be induced to generalize too rapidly, deducing rules of practice from casual exceptions. I have seen so many failures, and so few instances of success, when the disease has assumed anything of an acute character, that I am inclined to draw unfavourable conclusions respecting some remedies from which much has been expected. I refer particularly to strong and repeated opiates, to tobacco injections, and to large bleedings; and, as I scarcely remember to have seen one patient recover to whom tonics, chiefly bark, and generally stimulants, as wine and ammonia, had not been pretty liberally administered, I have come practically to the conclusion, that they form a very essential part of the treatment; while, theoretically, I should be led to a similar inference by a comparison of this disease and some others with which I consider it allied, and in which tonics, and even stimulants, are evidently beneficial. Hysteria, chorea, and epilepsy are all relieved, and in some cases cured, by tonics; and the two former are frequently benefited by stimulants. Epilepsy and hysteria, and even chorea, occasionally approach for a short time very closely to tetanus in their symptoms;—and why should we not seek the remedies for one, out of those most useful in another? Similar analogies would lead us to pay the strictest attention to the condition of the bowels, and by procuring daily

full evacuations, to satisfy ourselves that no accumulation either of the remains of alimentary matter or of vitiated secretions takes place; but I cannot help considering the state of irritation which has often been kept up in the alimentary canal by drastic purging, as likely rather to prolong than relieve a disease in which the irritability of the system is so great.—When any local injury can be discovered capable of keeping up irritation, it is obviously a great point to remove it as quickly as possible, or the irritating action of the part should be changed; and with this view, the practice recommended of applying blisters to the wound, as well as that of dressing it with mercurial ointment till a more healthy action is induced, appear amongst the most promising remedies.

It is a question how far the application of cold water to the surface in the way of immersion, of affusion, or of shower-bath, might act in this disease beneficially as it does in chorea; and here, as in the case of other remedies, we have the most conflicting evidence; for while Dr. Currie, following the suggestions of Dr. Lind, and the practice of Dr. Wright of Jamaica, thought most highly of the remedy, in idiopathic tetanus at least, Dr. Morison lost every patient on whom he tried it; and in a case in London where immersion was had recourse to, immediate death occurred. The late Dr. Gilbert Currie of St. Thomas's Hospital, has related, in the Transactions of the College of Physicians, a case of traumatic tetanus successfully treated by cold affusion; and I should be inclined to recommend its employment, because, in a case where I was only a spectator, and which I shall detail, the temporary effect in giving relief to the spasm and in inducing quiet sleep, was almost precisely analogous to its effects in the severe paroxysms of chorea in the case of FORD (Case CCXXXIX.), where it diminished spasm and encouraged sleep.

With regard to depletion by general bleeding, I think it likely both to increase irritability and to depress the strength. In a case, of which I am about to give the details, and where the patient recovered, I was induced to try the effects of leeches to the upper part of the spine, not with any view to general depletion, but from a desire of removing any tendency to congestion, if it should exist about the medulla oblongata or the column of the spinal cord, of which I have more than once seen some very faint indications on examination after death, though certainly not such proof as some appear to have witnessed.

## CASE CCLXXIV.

*Tetanus, from an Injury on the Leg, treated by Attention to the Wound, Leeches to the Spine, and Tonics.*

HENRY SOUTHERBY, aged 14, was admitted under my care into Guy's Hospital, November 13th, 1827, labouring under well-marked tetanus in consequence of a wound in his leg. It appeared that three weeks before, he was bitten by a dog in the leg, and applied a common poultice to the wound, without paying any further attention to it. At the end of a week after receiving the injury he felt unwell, and very chilly for two or three days, complaining of uneasiness about the throat, which his mother supposed to be a common sore throat. In the course of a day or two more, he felt a stiffness in the jaw; and about this time felt pain in the abdomen and left side of the chest; and the wound of the leg, which had before looked well, became foul and spreading: latterly, a black wash poultice has been applied, and the discharge from the wound increased. He had had neither pain in the head nor sickness at the stomach: he was occasionally drawn backward, so as to require to be held for a short time. There was general distress of countenance, with a wrinkling of the skin between the eye-brows, as if from pain. He had decided trismus, but with great effort of all the muscles of the face, could open his mouth so as to protrude the tongue to a moderate distance without touching his teeth: at the moment I first saw him the abdominal muscles were not rigid. He has been taking purgative medicines in which calomel was combined, and his breath was slightly affected with mercurial fœtor. Pulse 90, and sharp: tongue white, but moist. There was a wound through the integuments nearly as large as a half-crown on the lower and inner part of the right leg, of a somewhat circular or oblong form, with granulations of a flabby appearance, indolent, and insensible to the touch: the edges were elevated, hard, and jagged, surrounded by a darkish inflammatory areola.

R Hydrargyri Submuriatis gr. j,

Opii purif. gr. j,

Antimonii tartar. gr.  $\frac{1}{2}$ ,

Conserv. q. s.

fiat Pilula quarta quaque hora sumenda.

Habeat Olei Ricini  $\mathfrak{z}$ ss cras mane. (Low diet.)

14th. Had been disturbed by the noise of a man in the ward who was delirious, but occasionally fell asleep: bowels not open: tongue white and furred.

Habeat Pulv. Scam. Comp.  $\mathfrak{z}$ j. statim.

Repetantur Pilulæ sexta quaque hora.

Applicetur Emplast. Cantharidis vulneri.

15th. Whenever he falls asleep he bites his tongue; and yesterday afternoon whilst crying from biting his tongue, there was remarkable rigidity of the abdomen and some tendency to opisthotonos, and he had not the full command of his limbs. Pulse 98, sharp and small, and irregular in frequency for several beats: cannot open his mouth so well: several rather light-coloured dejections: abdomen more rigid than yesterday; has no headache.

Admoveantur Hirudines xx spinæ.

Repetantur Pilulæ, sed omittatur Hydrargyri Submuriæ.

Applicetur Unguentum Cantharidis vulneri.

In the evening was not better.

Repetantur Hirudines xx spinæ; et

Applicetur Cataplasma Lini vulneri.

16th. The trismus is more advanced, and there is more rigidity of the abdomen: would have slept last night had he not bitten his tongue: pulse sharp, varying from 100 to 120: the ointment has produced vesication on the wound and a good deal of surrounding inflammation: the opiate makes him drowsy, and he frequently perspires profusely: bowels not open.

Habeat Pulver. Scammon. Comp. ʒj statim.

Repetantur Pilulæ cum Hydrarg. Submuriat. gr. j.

Admoveantur Hirudines xx statim spinæ; et repetantur vespere.

17th. He says that his mouth did not feel to him so stiff after the leeches, but there was no visible amelioration; and this morning the mouth is closed and he complains of its being sore. He perspires a good deal, and feels drowsy: pulse varies from 96 to 104. At the time I saw him the abdomen was not so rigid: the purging powder was not given yesterday, he therefore took the haustus sennæ this morning, which has only produced one scanty light-coloured evacuation: he has frequent calls, but cannot pass anything from his bowels. He says that in the night he has frequent twitches of the limbs: the general aspect somewhat improved: the surface of the wound is so much altered by the blister as to prevent any opinion being formed of it. There is a disposition to nausea, and he has vomited once.

Habeat Pulv. Scammon. Comp. ʒj statim.

Repetantur Pilulæ.

Applicentur Hirudines xx spinæ statim; et repetantur vespere.

18th. Last night (9 P.M.), whilst asleep there was occasional twitching at different parts of the body: he however has passed a good night, though he bit his tongue several times: he cannot open his mouth so well. Pulse 108, irregular in force: less rigidity of abdomen: no pain in neck, back, nor indeed anywhere: bowels open several times: there is a slough separated from the wound; the edges for a quarter of an inch round a good deal inflamed.

*Repetantur Pilulæ bis die.*

*Applicentur Hirudines xx spinæ statim ; et repetantur vespere.*

*Sumat Zinci Sulphat. gr. ij sexta quaque hora. (A pint and a half of beef tea daily.)*

19th. He had two rigors last night, each lasting about a quarter of an hour, but apparently arising from temporary exposure to cold. He had more pain in the back, with much catching in his limbs, which went off after the leeches were applied: he slept very well. This morning his mouth is as much closed as ever, and feels very sore: pulse 104, not so sharp: abdomen not so rigid: bowels open twice: wound looks sluggish.

*Admoveantur Hirudines xx cras mane spinæ.*

*Applicetur Lotion Nigra vulneri.*

*Sumat Zinci Sulphatis gr. iij, et*

*Extracti Hyoscyami gr. ij, sexta quaque hora.*

*Repetantur Pilulæ hora somni.*

20th. Last night, whenever he fell asleep, he soon awoke with pain in the back, which was probably brought on by the position in which he was lying. He however slept well towards the latter part of the night, and today he can open his mouth more easily and wider. Pulse 98, irregular, softer and weaker: the appearance of the wound is improved: bowels have not been open since yesterday: the rigidity of the abdomen is the same: he has no pain anywhere.

*Habeat Pulv. Scammon. Comp. ʒj statim.*

*Augeatur Zinci Sulphas ad gr. iv.*

21st. Slept well last night, and only bit his tongue once: has no twitching in the limbs: pulse 106: abdomen the same: mouth not so sore: bowels not open: can open his mouth rather better: perspired a good deal in the night: the wound secretes more healthy pus, and he complains of its feeling sore.

*Habeat Haustum Sennæ secunda quaque hora ad sedes.*

*Applicentur Hirudines xx spinæ.*

*Augeatur Zinci Sulphas ad gr. v.*

*Repetantur Pilulæ hora somni.*

22nd. Was asleep last night at nine o'clock. He complained today of having been very cold during the night, but the extremities and surface of the body felt warm: bowels well opened, after taking three doses of the haustus sennæ; the dejections of a pale colour: he cannot open his mouth quite so well today: pulse 104: wound contracting: granulations healthy.

*Augeatur Zinci Sulphas ad gr. vj.*

*Repetantur Pilulæ hora somni.*

23rd. Can open his mouth better: pulse varies from 80 to 96: felt cold in the night;



no pain in back : bowels not open since yesterday : wound better, and more painful ; had no twitching in the night.

Sumat Haust. Sennæ ad alvi solutionem.

Repetantur Pilulæ hora somni *sine* Hydrargyri Submuriate.

Augeatur Zinci Sulphas ad gr. vij.

24th. Slept very well last night : pulse varies from 96 to 108 : the abdomen is nearly natural, as is also the whole body : he can open his mouth better, and was able to eat a slice of bread and butter this morning : no pain anywhere : bowels open twice : dejections of the same light colour.

Habeat Haustum Sennæ cras mane.

Augeatur Zinci Sulphas ad gr. viij.

Repetantur Pilulæ hora somni.

25th. Has passed a good night : is able to open his mouth with greater ease : he bit his tongue three or four times in the night : bowels not open since yesterday morning : abdomen nearly natural : pulse 96 : says that the dose of sulphate of zinc, which he takes about 3 P.M., occasionally makes him sick.

Habeat Haustum Sennæ ad alvi solutionem, et Repetantur Medicamenta.

26th. Pretty good night, but bit his tongue several times : was sick this morning after taking his pill : pulse 100 : rather more rigidity of abdomen : bowels open freely : several rather light-coloured dejections : wound contracting, edges of an ash gray colour, hardened and rather elevated.

Habeat Zinci Sulphatis gr. v sexta quaque hora.

Repetatur Pilul. Antim. Opiat. hora somni.

Applicetur Unguentum Hydrargyri vulneri.

27th. Slept well, but bit his tongue : pulse 96, small : no sickness : no rigidity of the abdomen at present : edges of wound less elevated.

Augeatur Zinci Sulphas ad gr. vj.

Sumat Pilul. Colocynth. cum Calomelane gr. xv. statim.

Repetatur Pilula omni nocte.

28th. Disturbed night : pulse 106, small : abdomen natural : several clay-coloured dejections : can open his mouth without any difficulty : wound healing rapidly.

Repetantur Medicamenta.

29th. Good night : no stool : pulse 106, small but regular : sick this morning after taking his pill.

Repetantur Medicamenta.

30th. Slept well : has not bit his tongue for two nights : pulse 106 : two figured dejections : not sick this morning ; complains of a feeling of stiffness at the articulation of the jaw.

Repetantur Medicamenta.

- Dec. 1st. Is sitting up dressed : pulse 120 : bowels open.  
3rd. Improves : can open his mouth well : wound very much contracted.  
4th. The wound on the leg smarts occasionally : pulse 110, regular : bowels open three times yesterday : sleeps well : abdomen natural.—To have middle diet.  
5th. Convalescent, but the wound not quite healed.  
7th. *Repetantur Pilulæ Zinci Sulph. ter die.*  
8th. Wound on the leg healed : bowels open : tongue clean.  
11th. Left the Hospital quite well.
- 

In this case twenty leeches were applied nine successive times, and the result was, at least, not discouraging ; however, little permanent advantage seemed to be gained, until the tonic plan, in conjunction with mild opiates, was adopted ; indeed the symptoms were very nearly stationary the first four days, and I feared that we were rather losing ground, and that the boy was becoming gradually exhausted by the disease.

On the 18th, five days after his admission, I determined to adopt strictly such a plan of treatment as I would in a severe case of chorea, when I had reason still to fear some over-excitement in the head or spine. Without therefore neglecting the use of leeches, which were repeated two or three times after the tonic plan was adopted, and paying constant attention to the bowels as well as to the state of the wound, I commenced with two grains of the sulphate of zinc every six hours, improved his diet as far as he was able to swallow, by giving him plenty of good beef tea and a little wine ; and continued the use of the pills containing opium, calomel, and antimony, twice in the day. The sulphate of zinc was daily increased a grain in each dose, and as it was administered very regularly every six hours, four grains were thus added daily to the whole quantity, and two grains of the extract of hyoscyamus were also added with each dose, omitting one of the opium and calomel pills. In a day or two I left off the single grain of calomel which he was taking at night, and the zinc was regularly increased, till the dose on the 24th and 25th was eight grains, making in the whole, thirty-two grains in the twenty-four hours. As this began to have an obvious effect upon his stomach, producing vomiting, I was obliged to reduce the dose to five grains, but increased it the next day to six, which he continued to take till the 5th of December, when he was decidedly convalescent.

I should be sorry to have it supposed that I offer this case as a distinct cure by tonic treatment, or that I wish it to be considered a case of that urgent

form of the disease which often overwhelms the patient, in spite of every remedy. It was a well marked and decided case, in all respects as severe when admitted as many in which I have seen the disease go on with an unchecked course to terminate in death, though every effort had been made to arrest its progress; and therefore I think it fair to infer that the remedies had a salutary effect: and I am the more inclined to lay stress upon this view of the matter, because the result couples well with the event of Dr. Elliotson's two remarkable cases of recovery under the use of carbonate of iron; for I know of no remedies which seem to go more completely hand in hand, in the cure of nervous irritation, than sulphate of zinc and carbonate of iron. Borne out, then, not only by the analogy of chorea, in which experience has been abundant and convincing, but by the apparent result of much more limited experience in the disease itself, we seem to have a clue at least to guide us to a treatment as rational as any which has hitherto been adopted.

#### CASE CCLXXV.

*Tetanus, which after the trial of a variety of remedies was fatal on the seventeenth day.*

ROBERT CHITTERFIELD, aged 15, experienced considerable difficulty in opening his mouth and in swallowing, arising from a spasmodic affection of the muscles of his face and neck, on the afternoon of July 28th, 1812. This affection continuing and increasing, his mother applied for advice on the 30th, and he was admitted as a patient into Guy's Hospital, about noon the same day, under the immediate care of Dr. Laird, on whose cases I was then attending as a pupil. No very satisfactory cause could be ascribed for the occurrence of these spasmodic symptoms. Some were inclined to believe that they arose from a cut, which he had received on the thumb with a piece of glass, about six weeks before;—this had been perfectly healed for above a month, and a slight mark only now remained. Others imputed the disease to exposure to cold and wet; for the boy, whose occupation was to assist in brick-making, had worked for some hours without his shirt, and exposed to a heavy rain, about a week before, when previously much heated: and it would probably be impossible to decide which of these two circumstances really laid the foundation of the disease.

As soon as he was admitted into the Hospital, Mr. Stocker prescribed the following mixture, which he had found most beneficial in a case of tetanus arising from an injury in the hand.

R Ætheris Rectif. ʒvij,

Decoct. Cinchonæ ʒxx,

Tinct. Cinchonæ ʒijss,

Tinct. Opii ʒiv,

Fiat Mistura, cujus sumat coch. iij secundis horis.

At 9 o'clock in the evening I first had an opportunity of seeing him. He is now in a profuse perspiration, particularly on the face and hands, which has been very much the case since the first appearance of the disease. Pulse 120, and rather weak: the spasm affects the muscles very extensively; his neck is rigidly extended and somewhat bent backward: the loins bent inward; the legs extended; and every part so stiff that by raising his head he may be brought into a perfectly erect posture, standing on the bed: he opens his mouth about half an inch only, and that with difficulty. He has taken his medicine regularly, and the following enema has just been administered.

R Medullæ Colocynth. ʒj,  
 Aquæ Fervent. ʒx,  
 Muriatis Sodæ ʒs.

He wishes very much for some strong beer, which he is allowed to take in moderation.

July 31st, morning: There is no marked alteration in his symptoms: he has scarcely slept during the night, and the enema has given him seven motions.

Noon: The thermometer in his mouth and axilla rises to 101°. It is observed that his testes (particularly that on the right side) are drawn completely to the pubis. The pupil of the eye is more than naturally dilated, and is very sluggish in its action.

9 o'clock evening. He has complained much this afternoon of painful spasm about the pit of the stomach and the abdomen, on which account a mustard cataplasm, followed by a blister, has been applied to that part. The perspiration on his face is particularly profuse: pulse 130: thermometer in axilla 105°. He constantly lies upon his back, and complains of pain which he chiefly refers to the part upon which the blister is applied: the moment he falls into a doze he gives a spasmodic start, and awakes again. He swallows fluids with considerable facility, even though lying on his back; but he finds it difficult to take any thing solid: his bowels have been relaxed all day, so that he has had six or eight watery motions.

August 1st. He has had a very disturbed and restless night; his bowels have acted once; perspiration profuse as before; his face is flushed, and constantly covered with large drops; pulse quick, urgent thirst. It has been found so difficult to get the medicines down, that it is thought better to put them in a smaller compass: he is therefore ordered to take 15 drops of the tincture of opium and 25 of the rectified æther, every two hours.

9 o'clock P.M. No stool: the colocynth glysters to be repeated. It is painful to see the helpless state to which this vigorous lad is reduced: he has no power of voluntary motion left, except in his arms: all his muscles are in turn thrown into spasmodic action; his neck and back curved backward, his legs extended. After the administration of the glyster it was necessary to take him from his bed, to change the sheets. When he heard this, he expressed great satisfaction, as it would give him an opportunity of sitting up, and in some way he hoped might change the painful posture in

which he lay. When taken from his bed he stood, or rather was supported, stiff and erect, touching the ground only with his toes; his neck stretched to its utmost, and forming part of the curve into which his body was thrown backward: he was much oppressed; his breathing and articulation were difficult, and effected by snatches. His thighs were gradually bent by the attendants, and when he was seated on the chair he said he was much more comfortable than in bed, and requested that his head might be bent forwards, which was gradually done; and when it was necessary that he should return to bed, he made every excuse in his power for delay. The glyster brought away loose yellow dejections: he afterwards fell into a doze, but was soon awakened by spasmodic catches. Pulse 108.

August 2nd. Passed a disturbed night, constantly wishing to get up and to be turned in bed: one dejection: pulse quick: tongue furred, but protruded with so much difficulty and pain that it could be but partially seen. As the disease seemed making progress, and the remedies had produced no material alteration in the symptoms, it was determined to give a trial to the effects of

#### COLD AFFUSION.

At about 10 o'clock A.M. (his pulse being then 112, the temperature in the axilla  $101^{\circ}$ .) he was taken from the bed, his whole body rigid as before; and was placed erect in a tub, while a large bucket of water, temperature  $60^{\circ}$ , was thrown over his head; he was immediately replaced in his bed between two blankets; the temperature of his body was not sensibly diminished: pulse very quickly fell to 100: he was wiped quite dry, passed a stool, and expressed himself delighted with the affusion, hoping it would be repeated. The symptoms however soon returned, and he complained very much of the heat of the blankets; yet he said he felt better than before the application of the water.

2 o'clock P.M. Pulse 110: temperature in axilla  $102^{\circ}$ : the affusion repeated with his most perfect consent: he was wiped dry, and put into bed between the sheets: he immediately passed a stool, which came away almost involuntarily: the temperature in the axilla had fallen nearly two degrees: the pulse was 102.

8 o'clock P.M. Pulse 120; the affusion repeated: no alteration in the pulse: he fell into a sleep after he was replaced in bed: in the evening he sat some time in a chair.

3rd. Passed a night of the most noisy restlessness; has thrown himself from his bed; desired to be put again into the water; and has abused the attendants in a most vociferous manner: no dejection. Pulse varies from 100 to 108, and is softer: countenance flushed: perspiration profuse. No improvement in the spasmodic symptoms; indeed the catches come on more frequently and severely: he entreats most earnestly to have the affusion repeated.

12 o'clock at noon. Pulse 120: temperature  $100^{\circ}$ . The cold affusion was repeated, and the pulse fell to 90: the spasmodic muscles were greatly relaxed, and felt much

less tense and hard. In the course of two hours the pulse had again risen; the perspiration had been more moderate.

3 o'clock P.M. Pulse and temperature as before. The affusion with water at 60° was repeated: the pulse fell in a few minutes to 90: a loose stool followed, with considerable expulsion of flatus.

Half-past 6 o'clock P.M. The affusion was repeated,—with this difference, that instead of a bucket of water being thrown over him, two buckets were now thrown from a shower-bath, and considerable temporary relief was experienced: the pulse, however, remained at nearly 120.

Half-past 9 o'clock P.M. Shower-bath repeated; after which he dozed.

4th. 1 o'clock A.M. Shower-bath again repeated, with the effect of making him feel very much more easy, and lowering the pulse: he then passed the latter part of the night quietly, and slept a good deal.

7 o'clock A.M. The shower-bath was repeated: the spasms, both now and the last time the cold water was used, appeared still stronger before the application than they had previously been,—he was drawn so much back, that he was with difficulty held in an erect posture that the water might fall on his head.

11 o'clock A.M. Shower-bath repeated. The symptoms still remain nearly stationary; the spasms even more violent; the perspiration diminished.

At this time it was supposed that no marked advantage had been derived from the shower-bath, and at a consultation it was agreed that it should be relinquished. It was now proposed to make trial of the

#### TOBACCO INJECTION.

Temperature in axilla 101°. Pulse 86, not weak, but irregular.

An injection was thrown up, made by infusing half a dram of the leaves of tobacco for ten minutes in half a pint of boiling water.

In 10 minutes, the pulse became more frequent, and still more irregular; and taken by three different persons in succession, gave 132, 140, 138.

In 20 minutes, slight nausea was produced. Pulse still less regular, 160, 112, 106, and weak.

In 30 minutes, pulse 156; slight nausea: he turned on his back: the pulse fell to 136, weak; 104, much stronger; 96, more strong: nausea increasing.

In one hour, pulse 100: nausea going off.

At 5 minutes past 6 o'clock P.M. the glyster repeated as before. Pulse variable from 100 to 120; the loins still rigidly bent back.

5 minutes after. Pulse 120: he moves his legs of his own accord. Pulse 100 to 120, thready, irregular.

At 10 o'clock, glyster repeated. Hitherto he had repeated his drops of opium and æther every two hours, but now laid them aside, in order that the efficacy of the tobacco might be more accurately seen.



5th. Half past 12 o'clock A.M. glyster repeated. Pulse 75 : respiration 30.

In 5 minutes. Pulse 120 : respiration 32 : temperature 101°.

In 15 minutes. Pulse 100 : respiration 28.

In 25 minutes. Pulse 120.

In 30 minutes. Pulse 85. He drank tea often : no signs of nausea : muscles of legs rather more flaccid.

In 45 minutes. Pulse from 86 to 100.

3 o'clock A.M. glyster again repeated.

6 o'clock A.M. glyster again repeated.

It was now found that no ground had hitherto been gained by the injections ; on the contrary, the spasms had increased, and on the whole the disease had made progress.

The pulse was so variable, that four successive quarters gave 29, 20, 17, 15. It was resolved not to harass him longer with the injections.

#### MERCURIAL TREATMENT.

At 12 o'clock the following ointment was rubbed into the thighs.

R Unguenti Hydrarg. fortioris ℥j,

Opii ℥j,

Camphor. ℥j,

Olei ℥j. M.

Fiat Unguentum, cujus infricetur ℥j secunda quaque hora.

This was repeated at 2 o'clock ;

at 4 o'clock, a dram and a half of the ointment was used ;

at 6 o'clock, the same ;

at 9 o'clock, the same.

The disease had appeared rather on the increase the whole day : the teeth were shut most closely, and the articulation was very indistinct : the spasms came on every three or four minutes, and gave great pain in the abdomen and at the pit of the stomach : the hands and arms had also been much affected by spasms, and his breathing interrupted. His irritability, which was always great, was much increased ; he was restless and uneasy, constantly begging to have his wrists held or his legs bent, or to have the posture of his body in some way changed : the perspiration profuse. He expressed a strong desire to be allowed to go again into the cold water.

10 o'clock P.M. Pulse 100 : respiration 50.

Habeat Hydrarg. Submuriat. gr. v, in forma Pilul., et Tinct. Opii ℥j ; et

Repetantur quarta quaque hora.

6th. Has been much more easy during the night, and slept more than on any previous night. He had repeated the calomel and tincture of opium at 3 o'clock, and again at 7 o'clock, and three drams of the ointment had been rubbed-in during the night. The spasms returned four or five times in an hour. He ate several oysters in the night, but the difficulty of swallowing was not at all removed : passed much urine ;

no stool. He opens his mouth so far as to thrust out his tongue, and thinks himself more easy : he frequently calls for drink, but can swallow very little. The quantity of nourishment which he has taken since being in the House is very small ; he drinks a little beer, and has also taken a very small quantity of wine.

10 o'clock P.M. He has taken his calomel and tincture of opium every four hours, and has rubbed-in one ounce and a half of the ointment during the day. He has been more cheerful, and much less restless : the spasms have come on him but seldom : his pulse has generally been above 100 ; respiration 28. Pulse now 134. No stool since the night before last.

R Extracti Colocynt. ʒj,

Aquæ fervent ʒʒs,

Fiat Enema.

7th. He had had five or six dark and fetid motions, and had persevered in the use of the calomel and opium. He passed the night in a state of restlessness, and was certainly no better this morning : his back was bent backward, and every part stiff, but not so painful as it had been : he was emaciated, and looked much worn by the disease. He was allowed eight ounces of raisin wine, and his mother brought him some tent wine : he had besides a little porter when he wished it, and ate a few oysters. In the evening, (as it was thought the nurse did not rub in the ointment effectually,) a man was brought for the purpose from another Ward.

9 o'clock at night. The pulse was 120 ; the skin hot ; and in the course of the day five or six dark-green watery stools had passed.

8th. He got some sleep for a short time. The disease was certainly making progress ; the countenance dejected ; pulse rapid ; breathing short, and bowels relaxed.

At noon, for the last time, mercurial friction was employed ; above three ounces of the ointment had been rubbed-in ; his mouth and throat were becoming sore, increasing the difficulty of swallowing ; the thighs were covered with pustules from the irritation of the mercury.

9 o'clock P.M. He began to take a scruple of musk and five grains of ammonia mixed in mucilage of gum Arabic, to be repeated every second hour.

12 o'clock at night. His bowels were constantly irritated, and green watery stools were discharged : the strength was lowered. Pulse and respiration quick ; partial clammy perspirations : eyes and cheeks sunk. The spasmodic catches were frequent, and he lay with his back forcibly bent at the loins ; the left side apparently more bent than the right,—a circumstance which had been obvious through the whole course of the disease. He complained of much pain, chiefly in the neck and belly.

9th. The bowels were still in constant irritation : he complained much of pain in his neck and the muscles of the belly, which was relieved by friction. His back was spasmodically bent every four or five minutes ; but there was a constant spasm independent of these momentary seizures : he complained of much headache, which was

relieved by pressure. He was very irritable, constantly requesting to have the position of his body or limbs changed.—At 11 o'clock the pulse was 40: respiration 40. The testes had been very generally drawn quite to the pubis. He drank frequently, but refused to eat even jelly; he took small quantities of wine and beer.

He continued taking the musk mixture till 2 o'clock P.M., at which time he had consumed half an ounce of musk and sixty grains of ammonia: the medicine was very nauseous; it had produced no good effect whatever, and it was relinquished. He said the medicine made him feel hot all over; but as the pulse had always been rapid and very irregular, I could not determine any particular effect produced on it.

He was now evidently sinking; the constant spasm did not diminish; the irritation of his bowels continued; and no further remedy was proposed; but it was recommended to nourish him as much as possible.

At 6 o'clock P.M. he was provided with some good port wine, of which he was to take an ounce and a half every hour, with thirty drops, by measure, of the liquor ammoniæ subcarbonatis. This was given to him as medicine, and in that view he was induced to take it, though it was with the utmost difficulty that he got slowly through the task. His pulse, which was small, exceeded 130; there was a cold and clammy perspiration on his hands and face; much pain in his head, great restlessness, impatience, and irritability.

10 o'clock P.M.: His bowels were much more quiet, but still open: the difficulty of swallowing seemed to increase. It is impossible to describe the sharp-pointed and contracted form which every part of his face had been assuming during the day. The interest which the case had excited from the protracted severity of its symptoms, and the character of the medicines which had been employed, was very great; but no one was at this time inclined to indulge a hope of his recovery, indeed few thought he could survive the night.

10th. The night had been passed almost without sleep; but he had taken his medicine regularly, and had eaten some jelly and some oysters. Skin warm; pulse more full; great difficulty of swallowing, but less than last night; four or five loose dark-coloured motions during the night. He complained much of the pain in the back when the spasms came on. The spasmodic action in the muscles of the face was rather increasing, particularly in the orbicularis palpebrarum. Towards the middle of the day he again began to droop; and his difficulty of swallowing the ammonia became so great that we were forced to relinquish it, and give him wine alone; he ate two or three oysters cut in pieces: a clammy perspiration came upon his hands. Pulse 130, of moderate strength: perspiration 48. He was much troubled with the mucus, which he was not able to expectorate.

As I sat by his bed-side about 5 o'clock, he fell for a moment into a half-doze, from which he opened his eyes two or three times, and uttered a few incoherent words,—they were the first I had heard which indicated any wandering of intellect: till this time, and even now when roused by being spoken to, he seemed perfectly sensible,

and gave most minute directions as to the little assistance he wanted, directing his hand to be placed in one direction, and his foot in another, and his head in a third. As the evening approached he grew weaker, and the difficulty of breathing became excessive, accompanied with a gurgling sound, and communicating to the hand placed on the right side of the chest such a crackling sensation, as to lead to the belief that much mucus was effused into the bronchi. The pulse was now very weak: and as the proper administration of stimulating and supporting nourishment seemed actually necessary to prevent very hasty dissolution, I determined to sit up with him during the night. The difficulty of breathing became so great about 12 o'clock, and this so much increased on swallowing, with perfect inability to expectorate, that I ordered warm fomentation to the chest: and after the application of this remedy for above two hours, the breath became much relieved, and the perspiration rather seemed to promote sleep. About 1 o'clock, as he dozed he became delirious; he called aloud upon his mother, and by name on a number of acquaintances; he talked incoherently, and even from time to time opened his eyes, with the delusion still before him: he one time called his mother to take him from the back of a horse; and when awaked, he wished to know where he was, and why he had no bedstead: and this was the way in which he went on till quite the morning. He passed a good deal of flatus, but no stools in the night. We contrived to get a pint of port wine into his stomach, with the third of a pint of sheep's-trotter jelly; and his pulse was considerably raised before the morning. He had had several spasmodic catches, but not very severe: he had been constantly moving his hands from the sling which hangs over the bed, and replacing them; and he had sometimes expressed great relief by having his arms brought nearly at right angles with the trunk of the body. At times the limbs had been flexible, at others rigid.

6 o'clock A.M. Delirium still continues, though he is easily roused from it, and then understands all that is said to him: his breathing is short and frequent, as if something opposed the expansion of the lungs. Pulse strong; skin inclining to be hot; he swallows with force, though with difficulty; is very averse to speak; and throws his head languidly from side to side. During the whole day he continued delirious from time to time: and his friends found it so difficult to persuade him to take anything, that the wine was no longer administered with regularity. About 3 o'clock his pulse was become very low, still rapid, and his breathing short. I now determined to give him his wine more regularly, and he did not refuse to take it; he took a small glass-full every hour mixed with a small quantity of jelly; by this means his pulse was raised, and rendered less frequent but more full; it was still, however, above 140. As the night advanced the delirium increased. His difficult respiration was somewhat relieved by fomentation; and his feet becoming cold about midnight, a bottle of hot water was applied to them. As the head was so much affected, I diluted the wine very much with the jelly, but delirium rather increased than diminished. The spasmodic affection of all the parts was evidently less than it had been; he bent his knees,

particularly his left knee, pretty easily, and he could almost straighten his elbows; his fingers were still much cramped. At one period in the night, when in his delirium, he called for a potatoe; I put a soft cake into his hand, which he carried to his mouth and bit three or four times, but he swallowed very little. Such was his state at 4 o'clock A.M.: his delirium constant; pulse by no means weak, but rapid; warmth of skin, except in the feet, sufficient; palms of the hands hot; respiration as short as it had been all night; voice very firm and strong, and frequently raised to a very high pitch; mouth dry, so that he asked for spring-water, tea, and small-beer, but always seemed quite contented with the wine and jelly, which he drank with rather greater facility than he had done, though sometimes it seemed to choke him. Thinking that he was not lower at this time than when I came to him in the evening, I left him, and was afterwards somewhat surprised to find that he had died two hours and a half after. No one was present at his death but his mother and a nurse; and as far as I could learn from them, no material change took place in the symptoms; he went on delirious to the last, if anything rather less vociferous: he requested to be turned upon his side; his mother drew him on his left side, and he died almost immediately, without any inspirations remarkably more difficult than the rest, and with froth coming from the mouth.

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Some apology, I am aware, will be thought due for detailing an unsuccessful case, when no dissection was procured, at such wearisome length; but it was one which, from the interest it excited at the time, has acquired perhaps a false importance in my mind:—it is most undoubtedly a case calculated to show the uncertainty of the action of remedies in this disease; and likewise to impress us deeply with the value of having some decided view or analogy to direct our treatment, and to encourage our perseverance in remedies calculated to promote the assumed object.—This case was under the care of men of great experience, and every attention paid which the deepest interest and anxiety could suggest. The different plans of treatment were adopted boldly, and were acted upon energetically; but as there was confessedly scarcely a theory on which to regulate the plan of cure,—as every man's experience had only taught him to doubt the efficacy of his remedies in proportion as that experience was great,—each was ready to relinquish the plan he had proposed: and during the fortnight this patient was under treatment, no less than four different plans were adopted; cold affusion, repeated ten times in three days; tobacco injections, six times in thirty hours; mercury and opium, carried to phylalism; and, lastly, diffusible stimuli:—of all these measures, the cold affusion seemed to give the most relief for a time; and even had it produced no

good effect, was a source of so much comfort to the poor sufferer, that I could not but lament its being relinquished for a remedy which was at least as ineffectual, and the immediate operations of which were harassing in the extreme. Under the use of calomel and opium and the mercurial ointment, it is true there appeared at times to be a remission of the symptoms; but on the whole, when three ounces of the ointment had been carefully rubbed in, and when five grains of calomel with a dram of tincture of opium had been continued every four hours for three days and nights, and consequently, ninety grains of calomel, and above two ounces of tincture of opium had been taken, and the gums were sore, it was plain that all the symptoms were aggravated, and he seemed sinking.—Musk and ammonia were then employed, and when he had taken half an ounce of the one and a dram of the other, with much pain and no relief, wine alone was administered, with whatever nourishment could be got down; and he died at length in that delirium, which often accompanies the last hours of life in this dreadful disease.

### CASE CCLXXVI.

#### *Tetanus, from a lacerated Wound in the Heel.*

A boy, aged 15 years, was admitted October 17th, 1825, into Guy's Hospital, having both his heels lacerated by a circular saw, and his left humerus fractured: he was very irritable, and on the evening of the 24th, he complained of what he called a sore throat: at night some symptoms of trismus showed themselves. I saw him first at midday on the 25th, at which time his countenance was most unfavourable; he could with great difficulty protrude his tongue; his neck was stiff, and drawn back; he complained much of a pain at the pit of the stomach. Muscles of abdomen hard; abdomen flat. His bowels had been moderately opened, and he had taken two doses of calomel and opium. Pulse 127, wiry.

℞ Moschi ʒj,

Ammon. Subcarbon. gr. v,

Spirit. Ætheris Sulph. ʒj,

Aquæ Menth. sativ. q.s. Fiat Haustus tertia quaque hora sumendus.

Injicetur Enema ex Oleo Ricini, et Spir. Terebinth. rectific.

Applicetur Cataplasma sinapis pedibus.

The wounds to be dressed with spirits of turpentine; and wine and brandy to be given with his nourishment.

9 o'clock in the evening. He was seen by one of the surgeons, who finding him



very irritable, ordered that a dram of the tincture of opium should be given as an injection every quarter of an hour; this was continued till two ounces had been thrown up without apparent effect. He continued to grow worse, and died on the following day at 2 o'clock, about forty hours from the first appearance of symptoms.

#### SECTIO CADAVERIS.

This was conducted with the greatest care by Mr. Bransby Cooper and Mr. Key, twelve hours after death; and there were no diseased appearances discoverable. The brain was most minutely examined, as was the spine through its whole course; and I may safely say, that no excess of vascularity or other change, which could be considered morbid, presented itself to my perception. The sympathetic nerve and its ganglia in the neck were carefully examined; they were white, and perfectly healthy in appearance, as were all the nerves of that part. The ganglia of the sympathetic, lying on the internal surface of the ribs, were in the same state. The plexuses and ganglia within the abdomen were agreed by all to appear healthy, though it was difficult to get them quite clean from the blood which escaped from some of the wounded mesenteric vessels. The nerves, going down the pelvis to the thigh, and the nerves of the leg traced into the wound, appeared healthy.

There was some congestion in the lungs. The right auricle of the heart was distended by a coagulum of blood, and the same was the case in the large veins near the heart and the jugulars. The gall-bladder was full of bile, and there were some small calculi at its orifice. The whole of the small intestines were contracted so greatly as to resemble those of an infant.

#### CASE CCLXXVII.

##### *Tetanus, from a Wound in the Sole of the Foot.*

A FINE stout young man, probably 22 years of age, while cutting up some old boards on Thursday, June 11th, 1829, ran a nail into the sole of his foot, about halfway between the heel and the toe, near the outer edge of the foot.

Tuesday 16th. The first symptoms of tetanus made their appearance. He was bled at the arm, but what other treatment was adopted I do not know.

Friday 19th. He was admitted into Guy's Hospital, under the care of Mr. Cooper.

I saw him first at two o'clock P.M.; he lay extended on the bed, his legs rigidly stretched, his neck quite straight out or curved a little backward: his abdomen hard and protruded forwards, while his back was bent: his countenance flushed and covered with perspiration, expressive of much pain, but still with an unnatural smile at times;

though his mouth was not spasmodically closed, he was unable to open it or put out his tongue: the spasmodic twitches succeeded each other almost without intermission, and as he was drawn back at each moment, he uttered groans of agony from the pain he suffered in almost every part, particularly the back, the loins, and the legs. Pulse quick and variable, from 120 to 140, according as the spasm was more or less severe: respiration hurried: his intellects were quite clear and he even seemed inclined to talk, both telling the nature of the accident and of his feelings. When I first saw him he had taken four grains of calomel, an injection of colocynth had been administered, a large blister had been applied to his whole back, sinapisms were on the feet, and two grains of opium, with a quarter of a grain of tartarized antimony, had been ordered every three hours.

The small punctured wound was still to be traced, but was dry and not inflamed. As the evening came on the spasms became more violent, but towards the morning of the 20th he seemed more composed and inclined to sleep, had he not been constantly roused by the recurrence of the spasms.

At eight o'clock in the morning he was visited by Mr. Cooper, who found him composed and apparently in every way better; but he had scarcely left him when he turned on his side and died immediately.

#### SECTIO CADAVERIS.

The examination took place six hours after death.

The vessels on the upper part of the brain and indeed over its whole surface turgid: slight effusion beneath the arachnoid. The cortical portion of the cerebrum showed very plainly the division into two parts, an external and an internal, separated by a lighter line; this was seen in different parts in different degrees of intensity, the ventricles slightly distended with aqueous fluid: the substance of the brain and the optic thalami and corpora striata perfectly natural. The cerebellum healthy; the pons varolii and the medulla oblongata were most carefully examined, but not a trace of disease could be discovered; there was a moderate effusion of serous fluid into the theca of the medulla spinalis; the venous system of the spine was full of blood, like the surface of the brain, but not the slightest deviation from natural structure, nor the slightest local congestion or extravasation could be discovered on the most minute examination, in any part of the spinal column.

The wound in the foot was very small; it did not seem to have completely closed, nor did the fatty cellular membrane appear quite healthy where the point of the nail had penetrated; it did not however seem to

have pierced the muscle, and no remarkable branch of a nerve could be traced to it.

We were not allowed to examine the other cavities of the body.

### CASE CCLXXVIII.

*Tetanus, consequent upon a Wound; superficial disorganization of the anterior Lobes of the Brain.*

MARY BREAKLOCK, aged 30, was admitted, under my care, into Guy's Hospital, May 19th, 1830, affected with tetanus. She was of rather a plethoric habit and somewhat addicted to drinking. Her husband was a chimney-sweeper, and they appeared to live together on indifferent terms; and on the 2nd of May, when they were both intoxicated, her husband threw a knife at her, which cut her just over the extensor tendons of the thumb. The cut was about half an inch in length and bled rather profusely at the time; and three or four days after, the symptoms of tetanus first showed themselves. We likewise learnt that she had, some time before, received a blow from her husband, and fell on some spikes, which had injured the back part of her head so that considerable hæmorrhage followed, and she was taken up in a state of insensibility; but how long this was before the injury to the thumb we could not distinctly ascertain.

At the time of her admission the wound on the hand had healed, but the hand itself was spasmodically contracted, and there was general spasmodic rigidity of the muscles, frequently drawing her backwards and closing her jaws almost completely. The expression of her countenance was exceedingly anxious: pulse 124: respiration 32: but much interrupted by spasmodic twitches: she complained much of pain in the abdomen, increased upon taking an inspiration. I ordered thirty leeches to be applied between the shoulders, her head to be shaved and kept cold by a lotion, and a blister to be applied to the cicatrix on the thumb; she was directed to take a grain of opium, a quarter of a grain of tartrate of antimony, and two grains of calomel, three times a day, and a grain of the sulphate of zinc every hour.

At ten o'clock in the evening she was seized with a fit, of a convulsive character, resembling epilepsy. The dose of sulphate of zinc was increased to two grains every hour, and a cathartic injection administered.

20th. At seven and eleven o'clock this morning she complained of much coldness of the extremities. She was more able to put out her tongue, the convulsive startings were less frequent, and her countenance was more placid. Pulse 112: skin moist: bowels opened by the injection: twenty more leeches were ordered between the scapulæ: the sulphate of zinc was increased to three grains for a dose: the antimonial opiate pill, with calomel, was repeated, and the blister was again applied to the cicatrix, and a senna draught was ordered.

At four o'clock in the afternoon a severe paroxysm, of a more completely tetanic character, occurred, at which time her pulse was 180.

21st. Pulse 112 : the zinc was increased to four grains to a dose.

22nd. Has had no return of the severe paroxysms since yesterday : bowels freely opened : pulse 118 : had some sleep last night.

Applicentur Hirudines xx inter scapulas.

Augeatur Zinci Sulphas ad gr. v omni hora.

23rd. No severe return : her articulation improved : pulse 118 : respiration 40 : she complains of much pain in the groins, which prevents her sleeping : bowels opened by injections : alvine evacuations very foetid.

Habeat Pilul. Ant. Opiat. fort cum Hydrarg. Submur. ter die.

Augeatur Zinci Sulphas ad gr. vj omni hora.

24th. Had some sleep : her mouth is sore : pulse 120 : a deep inspiration gives pain in the loins, and she complains of some pain in the hand which was wounded, running up to the shoulder, and a slight discharge has been produced by the blister : spasmodic twitchings more frequent and severe.

Applicentur Hirudines xx inter scapulas.

Augeatur Zinci Sulphas ad gr. vij.

Very little change took place, but some more severe paroxysms occurred, and she died at eight o'clock the following morning.

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For many of the particulars of this case, I was indebted to my attentive pupil Mr. Bradfield.

#### SECTIO CADAVERIS.

The examination took place five hours after death. The limbs stiff:—ecchymosis in the fibres of the abdominal muscles in the iliac region.

The lungs were perfectly healthy, there was no remarkable emphysema in any part, and no unusual subsidence of blood in the posterior part. The heart was pretty firmly contracted, the right auricle slightly but not greatly loaded with blood, the valves healthy ; the large arteries were remarkably healthy, and not the least stained with blood.

The peritoneum rather dry ; the intestines healthy and not contracted ; they were distended with gas and did not contain any feculent matter. The mucous membrane of the stomach rather granulated and pale, a good deal of tough mucus about it. The liver healthy ; the gall-bladder full of bile. The spleen pale and soft ; the kidneys healthy. The uterus

healthy and ovaries rather dwindled, and the Fallopian tubes bound down closely upon them.

The skull very thick, and with difficulty torn from the dura mater, but there was no oozing of blood from the surface, nor any unusual vascularity in the membrane itself. When we attempted to raise the dura mater from the brain, it was found to be so firmly adherent on the superior part of both anterior lobes, that in some points the brain would have torn rather than the membranes have separated. These adherent parts proved to be the margins of irregular excavations in the cineritious matter, of an ochre-brown colour all over, but that tint strongest towards the edges. The excavations contained no fluid, and were closely invested by a thin membrane which appeared to be a continuation of the arachnoid and pia mater, and on which vessels were seen distinctly running: this membrane was easily raised by the forceps, but the surface to which it was attached tore away with it; and while the membrane in the adjacent parts could be inflated by the blowpipe, the air did not pass under this. There was no adhesion to the dura mater, except partially at the edges of the excavations; nor did the dura mater show any marks of thickening or of inflammation: besides the excavations there were other brown patches, continuous with the excavations, covered with a more healthy arachnoid. Appearances of precisely the same kind, but not quite so extensive, occurred in the anterior portion of both the middle lobes. (Plate XIII. Fig. 5.) There was decided serous effusion beneath the arachnoid, filling the spaces between the convolutions. The arachnoid and pia mater separated easily from the brain. There was no unusual vascularity on the surface. The visible divided vessels in the substance of the brain were very numerous, but in no part was any mark of disease to be discovered. I did not examine very closely the right thalamus and corpus striatum, but in external appearance they were exactly like the left, which were perfectly healthy throughout. The lateral ventricles were small, and contained very little serum; the plexus choroides was rather pale, but there was some blood both in the large vein which runs along its edge, and in the vena magna Galeni. There was a good deal of fluid in the third ventricle and at the base of the brain. The tuber annulare was rather firm, as were the different parts of the medulla oblongata, but not the slightest deviation from natural structure was observable in any part.

The theca of the spine was most perfectly healthy in its whole extent,

both externally and internally ; there were a few very slight filamentous adhesions to the membrane closely investing the vertebral column towards its upper part, but not more than are frequently found in this part without any previous symptoms ; the membranes were otherwise perfectly healthy : the convoluted vessels, on the posterior surface, were rather full of blood ; the most careful division was made down the length of the column, on both sides of the middle line, without discovering the slightest deviation from perfect health.

The radial nerve was carefully traced to the wound at the back of the thumb, and a very large branch ran immediately along the bone, at the wounded part, so that it must have been cut at the time of the accident ; it was glued down firmly to the surrounding parts, in consequence of the inflammation which had formerly taken place, and appeared to have been slightly thickened in its own texture where the cut had passed ; but no deviation from the natural colour of the nerve could be traced around this part, or even in the part itself.

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The morbid appearances presented in this case throw no positive light on the nature or cause of this disease. The fact that a large nerve was wounded, shows the possibility, that local treatment of the wound may have some influence over the disease.

The most remarkable morbid appearance is that superficial change in the brain which I have so minutely described, and which I am inclined to attribute to some former disease, quite independent of the cause producing the tetanus. On the whole, from observing the different stages of this disease in the present case, I should ascribe this appearance to lesion of the brain, either by apoplexy, or by such injury as often occurs from blows and falls ; in which case separation takes place between the fine membranes and the cortical substance, and small points of ecchymosis are seen in that part, which is often reduced almost to a pulp. (Plate XX. Fig. 4.) This injured part is possibly removed by absorption, and the cavity, such as occurred in this case, is the result. It appears to me that this is precisely the same disease as that which I have described in page 148 (Case LXXII.) of this volume, as superficial ulceration, in which the excavations contained a "yellow soft matter which could scarcely be considered as true pus ;" but in that case the absorption had not gone so far. It will be perceived by comparing the two figures (Plate XIII. Fig. 1. Fig. 5), that the



colour of the morbid part and the distribution of the disease are in both cases very analogous. Probably Fig. 2. in the same plate is a more advanced stage of the same disease; but I am still inclined to think that Case LXXI., in which a small quantity of opaque fluid resembling pus was found, was a true instance of ulceration of the surface of the brain, though even that probably originated in the injury derived from the fall.

It is a question whether this appearance of the brain in the present case had any connection with the tetanic symptoms under which the patient sunk; but it is not improbable that any previous lesion of the brain acts as a predisposing cause, and perhaps the injury to the cineritious substance may more immediately predispose to spasmodic affections, such as tetanus. (See observations, page 46 and 146.)

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The following case is very analogous to that which has just been stated, and serves to illustrate the connection of cerebral lesion with the disposition to tetanic affection; indeed, in this case there is no proof of injury in any part distant from the head.

#### CASE CCLXXIX.

*Tetanus, from a Blow upon the Head,—a small Encysted Abscess in the Brain.*

JOHN ASHFORD, between forty and fifty years of age, was admitted into Guy's Hospital under Mr. Key, December 1, 1830, having had a blow from a brick on the left side of his head, just above the ear, four weeks previously.

He had slight symptoms of compression, and difficulty of articulation. He had also a difficulty in opening his mouth, which was at first ascribed to the injury affecting the temporal muscle, but it was soon found that it depended on a tetanic state of the muscles of the jaw: the abdomen was also rigid; and he had frequent tetanic spasms, drawing his body backward. A piece of bone was removed, and purgatives were administered, amongst which the oil of croton seemed most useful, and was always followed by considerable relief. Injections of tobacco and of turpentine were also had recourse to, together with several other remedies; but though the tetanic symptoms appeared at times to be alleviated and did not assume the most acute form, they never entirely left him. He became the subject of erysipelas of the face and head, and died on the 28th of December, about four weeks after his admission, apparently from the combined irritation of the two diseases.

## SECTIO CADAVERIS.

The face was marked, particularly about the eyes, by the remnants of erysipelas.

On raising the scalp, a considerable deposit of pus was found in the cellular substance over the right temple ; and on the left side, just above the ear, was the scar of the wound where the bone of the cranium was deficient. When the calvaria was removed, the dura mater appeared healthy, but, at the place where the bone had been removed, was glued down firmly to the edges of the bone ; and when torn from its attachments was found to be dark and discoloured. There was a small quantity of fluid under the arachnoid. That membrane, together with the pia mater, separated pretty easily from every part, but with rather less facility in the neighbourhood of the injury, where the dura mater was firmly glued to it, and both were fastened to the brain ; this was about the middle of the middle lobe, and immediately at the place of attachment a collection of pus was found in the substance of the brain, about the extent of a large nutmeg. This pus was contained in a firm cyst as thick as cartridge-paper, exceedingly vascular, and almost made up of minute vessels ; the cyst adhered to the dura mater, and seemed not improbably to be formed originally from a fold of the pia mater.

The substance of the brain was healthy and firm, even in contact with the cyst ; the inner layer of the cineritious matter was pinkish in its colour. There was no unusual quantity of serum in the ventricles. The pineal gland was large, and of a peculiar corrugated form. The basis of the brain healthy ; but the medulla oblongata, as far as it could be removed from the foramen magnum, was of a dirty gray colour, which on examination was seen to depend upon a carbonaceous stain in the arachnoid ; and the membrane itself was tough. The spine was examined, and this appearance did not descend much below the part where it was first seen : the spine otherwise was healthy, except that the plexus of veins situated external to the theca about the upper dorsal vertebræ was unusually large and turgid with blood. The viscera of the chest and abdomen were exceedingly healthy.

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In this case, it would appear that the whole mischief was confined to the head ; but what injury might have been sustained by the nerves of the

external part, so as to give rise to tetanic symptoms, independently of the actual lesion in the brain, cannot be ascertained:—certain it is, that we have instances of much more extensive mischief of a very similar kind in the brain, without any indication of tetanic spasm (Case LXXIII. p. 149. LXXIV. & LXXV., &c.); and therefore in this, as in the last case, it is probable that the cerebral lesion served to favour and keep up the tetanic irritation rather than produce it. The peculiar condition of the medulla oblongata is very well worthy of being noticed in connection with this disease, as in spasmodic disease we may fairly attach a good deal of importance to any lesion in this part of the nervous system. The only instance I ever saw of a very analogous deposit of gray, apparently carbonaceous, matter on the surface of the medulla oblongata, was in a case in which no tetanic symptoms were discovered, and which I have detailed (Case LXXII. p. 148.) as one where superficial ulceration existed on the convolutions of the brain; and I have considered this gray deposit to have arisen from some former slight effusion of blood. I have also mentioned a similar appearance on a portion of the arachnoid lining the dura mater (Case CXXIX. p. 272.) connected with some symptoms of imperfect paralysis.

The chief morbid appearance was the ENCYSTED ABSCESS in the brain close to the part where the blow had been received; and this is very interesting in connection with cases of a similar kind which have gone before. I have just referred to three cases of this disease, in all of which it remained a matter of some doubt whether the abscess had its origin from external causes, or originated from diseased action set up spontaneously within the brain. In one of those cases we had the history of a blow having been received;—in another, great irritation had long existed in the membranes of the nose, and the abscess was placed in a corresponding part of the brain;—in the third, no clue could be obtained as to a probable exciting cause. In the present case, no doubt can exist that the blow and the cerebral disease were closely connected. The cyst was smaller, and seemed to be in a more incipient state than any of the others; its parietes were thinner than in the other cases, and very vascular, and gave the idea of being indebted for that vascularity, in a great degree, to the pia mater of the part.

## CASES

### ILLUSTRATIVE OF THE PHENOMENA OF HYDROPHOBIA.

AFTER so much has been written upon the subject of Hydrophobia, with so little success, I might perhaps have passed it by altogether unnoticed; but I have thought it right to introduce some cases, as affording examples of the extreme effects of irritation on the nervous system, without any proportionate structural change: and though neither the treatment nor the proximate cause of the disease will be rendered more obvious by any decided facts I can advance, I trust a certain analogy will be established in the minds of those, who will thus have followed out the trains of symptoms which mark respectively Chorea, Epilepsy, Tetanus, and Hydrophobia, and that this will serve to excite a hope, that even the most unmanageable of them, being equally devoid with the rest of all evidence of necessary organic lesion, may hereafter be found, like them, subject to the controul of remedies which apply themselves to the functional derangements of the nervous system.

### CASE CCLXXX.

#### *Hydrophobia, in which Bleeding was carried to a considerable extent.*

— CLARKE, aged 52, came under treatment for hydrophobia, March the 11th. He had been bitten about five weeks before by a dog, which had been very snappish, refused all food, and died the day after. It was not known that the dog had bitten anybody but this man. The bite was in the middle of the upper lip: and about two days after the accident he came to Mr. Phillips in the Borough, who applied caustic, and it afterwards healed. He had been accustomed all his life to pains in the head; but he had observed that for three weeks before his fatal illness these were worse, and even attacked him at times so severely in the street that he could scarcely walk; and he was often obliged to go to-bed early on account of them. This had been particularly the case for the last three or four evenings; and on the evening of the 9th he was more than usually distressed. On the morning of the 10th he refused to take his tea, and complained much of headache and shivering. Mr. Phillips was called to him in the evening. The respiration seemed affected, the head was painful, and he complained of complete want of appetite. The circumstance of the bite did not at the time come to the mind either of the patient or the surgeon; but sixteen ounces of blood were taken from the arm, and a purgative of calomel and extract of colocynth ordered,

which operated well: he passed a perfectly sleepless night, and in the morning the true source of this symptom became manifest.

Dr. Cholmeley saw him at 2 o'clock. At that time he lay in bed perfectly sensible, complaining of no pain, except in the head; but the difficulty of respiration and of swallowing seemed very great. The dread did not seem to be of fluids, but of any thing approaching the lips: the sound of water passed from one vessel to another gave no uneasiness, nor did the flowing of the blood. An orange having been mentioned, he expressed a wish of trying to swallow a little: he attempted, as it were, to surprise himself by concealing the orange completely with one hand, while he approached it to his face with the other; but no sooner had he brought it to his lips, than he leaped with force out of the bed, and, had he not been firmly held by the bystanders, was rushing forwards with violence. Pulse very quick and irritable.

*Fiat Venæsectio ad uncias quadraginta.*

This reduced the pulse to a state of great feebleness; and he afterwards complained of a sense of heat in the stomach.

8 P.M. He lies on his back very little elevated; his sense is not impaired, but his mind disturbed: he is pale; pulse 130, sharp: respirations ten or twelve in a minute, and of uneven length, as he seems to avoid as much as possible taking a full inspiration; but after three or four very imperfect but long-protracted respirations, he sighs; for a few seconds he lies quite tranquil; then seems to have a strong desire to perform the act of deglutition, though the quantity of saliva secreted is very small indeed; he moves his lips as if making the attempt, his respiration at this time being stopped; he then makes a violent effort, sometimes throwing himself up in bed in a sitting posture; sometimes moving his hands and legs with a spasmodic jerk: in these momentary paroxysms he often requires to be held firmly, or he would throw himself from his bed: these recur at every four or five minutes very irregularly. He says he cannot spit out, or it would agitate him more. He scarcely speaks, or it is in a hurried indistinct manner. When asked why he did not spit out, he answered, with a spasmodic motion of his hand through the air before him, "I should be *there*:" he then attempted to take the thick viscid saliva from his mouth, which he did with a quick motion of the hand. His great dread was lest anything should approach his lips; and he seemed much afraid of being left, lest he should throw himself or rush out of bed. He was averse to having any more blood drawn, and seemed to give himself completely up to despair. When told that it was the only possible means of relief, and we hoped it would ease him, he exclaimed, "Yes, that and the ground will." However, after much opposition both from himself and his wife, he was bled about sixteen ounces, till the pulse became quite imperceptible at the wrist. Immediately after this, and before the arm could be bound up, a most violent spasmodic fit came on, which drew him back, and extended his arms and legs as stiffly as it was possible, imitating precisely a severe tetanic seizure: in a minute or two he recovered, and lay

on his bed: he wished he could drink; said he would give the world for a pint of beer; but at the same time said it was impossible. He complained of a sensation of burning heat, first in his head, then about the pubis:—"What is the matter with me?" he said, "I am burning!" The pulse soon began to return at the wrist. The symptoms were very little changed, except that he was weaker. In about a quarter of an hour an injection was thrown up with milk and half an ounce of tincture of opium; he turned himself on his side with the greatest difficulty and slowness to have this administered, and in about five minutes nothing could keep him in bed,—for he had a great dread of passing a motion in bed,—so that he got out and placed himself on the close-stool: here he passed the injection and some little feculent matter, and a considerable quantity of water, which he had not done before for above twenty-four hours. While sitting on the close-stool he retched several times, but brought up nothing; he called for "Air! air!" and he spit out a very small quantity of frothy saliva. He returned to bed, and I soon left him, his pulse being then 160, not easily counted. After this time he became more tranquil, and some time after expressed a desire to eat a raw turnip, which was given him, and he actually swallowed a considerable part of it. About 11 o'clock Mr. Phillips called, and induced him to take a pill consisting of four grains of calomel and one of opium. About this time he was represented by the family as having grown worse, being excessively violent, but retaining his senses to the last. He complained very much of pain in the head, requesting those about him to squeeze his head with all their force. About twenty minutes before 7 A.M. on the 12th, he died.—The scar in the upper lip was very visible after death.

On questioning the wife, it appeared that she did not at all believe that the disease originated from the bite; but she said, that she thought her husband had always feared that this disease would be the result, though he had not openly expressed it, being, as she said, a close-minded man.

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In this case, it is to be remarked that the bite was inflicted on the face, a part uncovered by the dress, and therefore the more liable to receive the injury in its full force; that the part was never completely removed by the knife; that there was some degree of apprehension in the mind of the patient from the time the bite was inflicted, though there seemed a desire of concealing it even from himself; that he had been always subject to cerebral symptoms; that about five weeks elapsed between the wound being received and the disease showing itself; that the marked symptom was a dislike to swallow or allow anything to approach his mouth, rather than a specific abhorrence of fluids; that bleeding, carried to a very considerable extent, gave no decided relief; and that the disease proved fatal in about forty-six hours from the first appearance of symptoms.



## CASE CCLXXXI.

*Hydrophobia, occurring fifty Days after the Bite.*

— EDWARDS, residing in Mitre Cottage, Broad-Wall, New Cut, a hale-looking man, but reported to have been a good deal addicted to drinking, applied for assistance at Guy's Hospital on Wednesday, May 27th, 1829. He had been bitten by a dog, to which he was giving medicine, on the 11th of April: the bite was on the thumb of the left hand, partly on the fleshy part of the ball, partly on the outer side of the lower joint. He was a dog-dealer by trade, and had never appeared the least fearful before, having been bitten by a bear severely, and by dogs many times; but on this occasion he had evinced most peculiar terror at the bite; and for almost the first time in his life went immediately to a medical man, who applied nitric acid, and had the parts poulticed for nearly a month.

The dog was supposed to labour under obstructed bowels, and showed no symptoms of snappishness with regard to others, but two days afterwards died; and on examination of the stomach by the medical man who had cauterized the affected hand, it was found to contain a very few particles of straw, but otherwise was healthy: the colon was full of fæces.

The man has remained in tolerable health; though he says that for a month he has felt a kind of desire to vomit, without being able: but he has never liked to hear the bite of the dog referred to, and for the last fortnight has been feeling unwell, and sometimes drowsy, and his appetite has been bad. On Saturday last (the 23rd) he came home to his wife from a friend's house, complaining that they had been talking about the danger of being bitten, in a way which made him resolve never to go again to that house. For some reason, (and as he says, only because he has accidentally fallen in with friends,) he has during the last ten days drank a great deal, not having been actually intoxicated, but drinking to excess constantly.

On Monday the 25th he felt a desire to be sick, which led him repeatedly to put his fingers down his throat, but without effect.

Tuesday 26th. Still under a feeling of oppression about his chest and stomach, he took three times in the day a tea-spoonful of salts in water, and this had the effect of opening his bowels very freely. He passed the nights both of the 25th and 26th in a most restless manner; and the whole of those days had severe pains like rheumatism in the bitten arm, with a pricking pain both in the wounded part and up towards the axilla and shoulder: and the scar of the bite was evidently inflamed. He was very thirsty, and drank much gruel to make him sick, but without effect.

Wednesday 27th. At 6 o'clock in the morning he walked the length of a street, to the gentleman who had cauterized the wound, to seek some relief: he took a dose of calomel and opium and some castor-oil, and then with great difficulty and agitation walked home again. After this he came in a coach to Guy's Hospital; but at this

time he was evidently influenced by the air, and kept a pocket-handkerchief over his mouth as he went in and out.

I first saw him at 11 o'clock at the Hospital. At that time the pulse was about 96, a little intermitting; tongue white; face flushed: there was some anxiety about the countenance; but there were no spasms, nor anything to indicate the peculiar nature of the disease, till mention was made of giving him something to drink, when he immediately rose in an agitated manner, and said he would go home directly. He went towards the outer door, but finding the coach gone, and having some painful impression from the air, he came back and sat down again.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad uncias decem, et admoveatur Emplastrum Cantharidis postea.

R Assafœtidæ ʒj,

Tinct. Opii ʒij,

Spir. Ætheris Nitr. ʒiſs. M.

fiat Enema secunda quaque hora utendum.

R Opii purificati gr. v,

Zinci Sulphatis gr. xx,

Confectionis q. s. ut fiat Suppositorium, secunda vel tertia quaque hora adhibendum.

R Opii purificati gr. j,

Antimon. Tartarizat. gr. ʒ,

Hydrarg. Submur. gr. ij,

Conserv. Ros. q. s. fiat Pilula quarta quaque hora sumenda.

Applicetur Emplast. Belladonnæ scrobiculo cordis.

2 P.M. I saw him at home lying composedly in bed. The blister and the belladonna plaster had been applied, but with the greatest difficulty, owing to his agitation: not above six ounces of blood had been obtained by cupping; he had brought up his pills an hour after they were taken; he talked quite collectedly, showed the parts bitten, and told all he had felt: on one occasion, speaking of something to drink, he began to catch violently in his breathing, and then jumped out of bed and stood against the wall. He most obstinately refused to take anything to drink or to eat, and said if he got over this, he would have nothing more to do with dogs. Pulse 120, and a short time after 100. There was nothing in his appearance which to a common observer would lead to the belief that certain death was near; but those who had witnessed the disease before, could not be mistaken as to the result.

5 P.M. He has had one injection and one suppository, but these soon came away, and he absolutely refused to have them repeated. On one occasion, when he was asked to try to eat or drink something, he sprang up and walked about the room, saying, if he did, he should "kick up such a dust, we should be surprised;" and at the same time used violent gesticulations and contortions of countenance. He was now

constantly walking about the room; and not much affected when the air blew upon him, so that opening and shutting the windows did not influence him; but when a window into which the wind blew pretty directly had been some time open, he complained that it was too much for his breath, and gave two or three deep catching inspirations. One great complaint he made was of the wind at his stomach: he said it was as a load at his chest, and if he could have anything to disperse it he should do well. The pulse varied from 25 to 27 beats in the quarter: his tongue was white and clammy, and he occasionally spit a small quantity of tenacious saliva on the floor.

In consultation, it was our wish to excise the scar upon the top of the lower joint of the thumb, in which some action had evidently been going on, and which appeared rather tumid and inflamed; and for this purpose I returned into his room to propose it to him, but the very thought threw him into a paroxysm;—he panted, sobbed, walked hastily about the room, said it would kill him, and he could not submit: “If I were well,” he said in a spasmodic interrupted voice, “I should not be afraid to have my arm cut off; but now you see how nervous I am, you know I could never bear it; it would kill me.”—It was then agreed that caustic potash should be freely applied over the part, and that three drams more of tincture of opium should be added to each injection, and more opium added to the suppository.

9 o'clock P.M. I again met Mr. Callaway and the Surgeon; but the door was locked against us: he declared he would see no one, take nothing, and use no means. He had conceived a dislike to me, because I had proposed the excision to him; and to the surgeon, because he had wished to use the potash. After much persuasion, however, he allowed Mr. Callaway to see him. He was nearly in the same state as at 5 o'clock, but the paroxysms were more frequent, and pulse 120: he obstinately refused all aid.

At 4 A.M. (Thursday, May 28th,) he sent for Mr. Callaway, who found him much worse, the spasms more violent and more frequent; he had passed a considerable dark motion in his clothes, and made some water: he complained of thirst, and thought he should like some porter; but as soon as he heard some one bringing it up the stairs, he fell into a paroxysm, and would not allow it to be offered to him: he promised to take one of his pills; but the moment he heard Mr. Callaway opening the paper, he sprung upon him, and held him firmly by the two arms to the wall with a kind of spasmodic force; then apologized very sincerely for this disrespect, but said he would not take the medicine. He sometimes spit up some mucus, and then immediately said, “There, that has relieved me.”

Mr. Callaway again saw him about 8 o'clock, but there was no change; the paroxysms became more violent; he called out and spoke loudly, and his conversation became more incoherent; and he even wished to have intercourse with his wife, but there was no priapism. After a very severe paroxysm, he died at ten A.M.

Thus from the first application for medical assistance and the appearance of symptoms, thirty hours only elapsed: he had, however, been decidedly unwell some time before.—No remedial means were employed on account of his obstinate refusal, nor was any examination of the body permitted.

## CASE CCLXXXII.

### *Hydrophobia; Amputation of the Arm.*

HENRY CHAMPION, aged 17, was admitted into Guy's Hospital, April 26th, 1827, affected with decided symptoms of hydrophobia. He had been bitten severely on the back of the hand, on the fingers, and in the palm of the left hand, by a strange dog, from which he was endeavouring to save a child, on the 11th of February preceding. The wound healed well under simple dressings and a wash: the child, which was likewise slightly bitten, remained well; the dog was killed. Under these circumstances he had ceased to feel any anxiety about the bite, and continued quite well till within the last two days, when he felt a tingling sensation in the palm of the hand. We were likewise told that on the evening of the 24th he went to the theatre, where he felt very hot, restless, and uncomfortable, and had a bad sick-head ache. His bowels were at that time confined, and on coming home he took some castor-oil, which acted fully and relieved him considerably. The next morning he felt stiffness about the back part of his head: he had occasional slight tremblings during the day and some difficulty of swallowing, which he described by saying that when the fluid was half-way down, the wind met it and forced it up again; he had also a great sense of tightness about the epigastrium; and these symptoms continuing to increase, and severe headache coming on, he was this morning brought to the Hospital. The symptoms were quite unequivocal; his aspect and his whole manner, the convulsive sobbing occasioned as he attempted to swallow or if he was hurried to do anything, were all such as left no doubt of the disease.

Experience too plainly told all who were present what must be the result, as far as all tried remedies could avail; and as there had been such obvious proof of some morbid action in the wounded part, it was proposed to amputate. The boy was fully aware of his situation, and readily consented to the operation. The arm was removed above the elbow, at about half past 2 o'clock; he was a good deal convulsed during the operation, but otherwise bore it well, though it was with some difficulty that the arm was held steady. The muscles were rigid and high-coloured. As soon as he had recovered a little from the shock of the operation, he said he felt much better, and continued so for three quarters of an hour. Pulse 108, small: skin moist: countenance pale: he was perfectly sensible. The symptoms however soon began to increase rapidly, and considerable hæmorrhage took place from the stump, which was attended with several very severe attacks of convulsion; and when, shortly after, some cold tea

was put to his lips, so violent a convulsion followed that he nearly jumped out of bed. Pulse 160, full. An injection was now administered with half a dram of extract of belladonna, and some of the same was rubbed upon his chest, which was now found to be completely emphysematous; priapism came on, the pulse grew weaker and more trembling, and he died at 8 o'clock, nearly forty-eight hours from the commencement of his illness, and about thirty-six hours after the difficulty of swallowing was first perceived.

#### SECTIO CADAVERIS.

At the extremity of the stump there was a coagulum with some fluid blood: limbs rigid: no disease about the dura mater or arachnoid. Brain perfectly healthy, or, if anything, rather vascular; and there was rather more fluid than natural in the ventricles. Corpora striata healthy; and nothing particular in the appearance of the ventricles, except a small opaque yellow body in the left choroid plexus. Some increased vascularity, or rather a blush of redness, in the cineritious part of the spinal cord, on the left side, opposite to the second and third cervical vertebræ; the rest of the spinal cord, most carefully examined, was found to be strikingly healthy, as were the membranes inclosing it. The cerebellum was perfectly natural.

Air was found in the cellular membrane, in the anterior mediastinum, and particularly that part which comes to the diaphragm; air likewise distended the cellular membrane between the lobules of the lungs. The lungs themselves appeared in patches of a more brilliant red than usual. The membrane lining the trachea, particularly about the bifurcation, showed increased vascularity. The heart was natural, and neither its lining membrane, nor the inside of the large vessels, was stained with blood.

The œsophagus was slightly marbled, and near the cardiac orifice of the stomach there were marks upon the mucous membrane, denoting partial turgescence of the vessels.

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This then is a case of Hydrophobia, well marked in all its symptoms and its attending circumstances; the bite on an exposed part had healed; fresh irritation took place in the wound about seventy days after the bite, followed the next day by decided symptoms, and death within forty-eight hours. The appearances after death evinced the effects of vascular turgescence in the head, and congestion in the lungs, with effusion of air into its cellular substance. Nothing which was done gave relief to the symptoms; and the complete amputation of the part, after the symptoms were confirmed, was quite unsuccessful.

## CASE CCLXXXIII.

*Hydrophobia, occurring four Months after the Bite ;—Hydrocyanic Acid given without any effect.*

IN September 1821, M—— R——, a middle-aged man, who had been much exposed as a seaman, and had once suffered from the yellow-fever, was brought to Guy's Hospital labouring under hydrophobia. It appeared that he was accustomed at times to drink very hard, so that frequently for several days together he would scarcely ever be sober, and then again would be for some time much more moderate. For three days previous to the attack of the disease of which he died, he had been almost constantly intoxicated. About four months before, when returning from his club at night, he brought with him a little dog, of which he knew nothing ; and which bit him on the following day in the thick part of the thumb. The bite bled very freely indeed, but soon healed.

The day before his admission into Guy's Hospital, about 4 o'clock in the afternoon he experienced a difficulty, amounting almost to an impossibility, of taking his porter, and in consequence sent for medical assistance ; and at half past 10 the following morning Dr. Back visited him at home. There was then no doubt as to the nature of his complaint, and when he attempted to take a cup of fluid it was thrown with a convulsive jerk over the room. Sixteen ounces of blood were taken from his arm, and he was brought to Guy's Hospital ; where blood, to about sixteen ounces, was again taken, after which his pulse, which had been 96, rose to 120.

At 1 o'clock Dr. Laird, under whose care he was now placed, was sent for ; and he ordered him to take ten drops of the hydrocyanic acid, of the ordinary strength used for medicinal purposes, made up in the form of bolus, with compound tragacanth powder, every two hours ; and two grains of opium, with five of calomel, in the intervening hours.

At 3 P.M. I first saw him, and understood that little change had taken place. He was a strong-looking man, and was sitting up in bed. Pulse 108, rather sharp : respirations about thirty in the minute : tongue somewhat white, but not furred, nor very dry : his eyes, which were glassy, had a look of inquiring anxiety. He complained of great weakness but of no acute pain, though he had a little between the shoulders and near the second dorsal vertebra. When we talked to him of attempting to drink, he expressed himself so averse from the attempt, that we could not press it. He said it made him so weak ; it gave him such pain to the very ends of his fingers. What he chiefly complained of was a feeling of lassitude, and lightness of the head ; he took a cup of barley-water, and dipping his fore and middle finger into it, raised them to his mouth, and thus endeavoured to quench his thirst : this he did several times in succession, but he said it fatigued him much. When asked if he wished for anything else ; he said, porter he thought he should like best :—some was warmed, he



dipped bread into it, and though, with great deliberation and slowness of gesture, he contrived to eat several mouthfuls of the bread quite dripping wet with porter, yet every now and then all which he did was interrupted by deep catching sighs. It was proposed to him about this time to take a *spoonful* of porter: he said he would do any thing he was desired, though he feared it would be impossible;—accordingly raising the spoon half-full to his mouth, the moment the fluid touched his lips he gave a deep spasmodic sigh, which prevented his taking in the fluid, and this was repeated as often as he renewed the attempt: he said this spasm rendered him so weak he did not know what to do; his face grew always flushed at each attempt. At 5 o'clock Dr. Laird again came: the man complained that as often as he fell asleep he had jumpings and twitchings, particularly in his arms, which awoke him; and the hurry of our entering seemed to have flushed his face: pulse weaker, about 104; blood drawn in the morning not detached from the side of the vessel, but the serum had so far separated as to lie on the top; there was no buff whatsoever: there was little change in the symptoms: his tongue was more moist; his skin soft; pain in the back a little less: he wished for more air, for the room was small. He saw very distinctly, and his reason was most perfect. He said that he thought he could swallow fluids through a straw or a long tobacco-pipe; a quill was proposed, but he said it was not long enough. A hollow elastic catheter was given him; he tried to draw up some porter, but the moment the fluid reached his mouth it caused a sudden deep sigh; he said this was too large, but he thought something smaller would do better. He was given a long tobacco-pipe, and he drank probably an ounce in this way; the exact quantity of course we did not know,—but we saw the motions of the trachea in swallowing, and each time a fresh quantity came to touch his tongue he drew a deep sigh: he complained of increased weakness, so that he could not draw on the bed-clothes. Being desired to suck up some of the fluid in the pipe and then pour it out in his hand, to try the effect; he did it at once with a steady hand, and said it gave him no uneasiness: he expressed sorrow at giving so much trouble; was ready to do whatever he was told; said he was not afraid of anything. Enema with assafoetida and castor-oil to be administered immediately. When he took his bolus of hydrocyanic acid, he divided it into three parts, dipped it in water, and with a deliberation which amounted to the expression of aversion, took the pills into his mouth and swallowed them.

9 o'clock P.M. Has had some more quiet sleep; feels sleepy; four or five motions, watery and of good colour, from enema; all the fullness in his stomach, of which he spoke, as if a sponge were in it and there were something rising up, is gone; he has still pain in the second dorsal vertebra; he has, by means of the stem of a tobacco-pipe, drunk nearly half a pint of porter and some barley-water; which he can do, with scarcely any of that catching of the diaphragm before observed, but he drinks very slowly. After much persuasion he attempted to drink out of the cup: he brought

it very slowly towards his mouth, and when within about two inches he took it away suddenly, gave a deep sigh, turned his eyes away and prayed for God's sake that we would not ask him to do it. Pulse 120 : skin very moist. There had been a panel taken from the top of a partition in the room, so that now the air was much more free, and he was very thankful for this improvement. He had taken his pills and bolus quite regularly; some newly procured acid having been used since 5 o'clock; the dose at first but eight minims. His gums were red, and appeared already under the action of the calomel; it was therefore determined to give only one dose more of the calomel, but then to continue with opium and hydrocyanic acid. The quantity of urine which he passed was very small, but he was constantly in a gentle perspiration; he seemed to like much the new mode of drinking, for it gave him great ease to satisfy his thirst, which, though not very urgent, was always a cause of complaint: tongue a little furred towards the root.

Half past 10 o'clock. There was no particular change, certainly no aggravation of symptoms the last hour. Enema of assafœtida ordered without castor-oil.

About 12 o'clock, having been for some time in a quiet sleep, he awoke with a strong spasmodic catch, and from that time did not sleep again; he took his medicines with regularity till about 4 o'clock, when he declared himself unable to take any more: he was now considered evidently worse, the catchings more severe, the anxiety greater. About 7 o'clock in the morning Mr. Stocker saw him; at that time he complained so much of want of air, that some one got him a fan and began to use it to his face; but in a moment he was seized with a spasmodic action of the diaphragm as in drinking, and besought him not to do it again, requesting to be allowed to use it himself, which however he never did.

At half past 8 I saw him; his countenance was evidently more anxious and more dejected. He said he had no pain whatever; all he wanted was fresh air and a little strength, and putting his hand to his forehead, he complained of a feeling of lightness rather than of pain: "Pray let me go into the open air; I am sure I should be better then, I have been used to so much fresh air. I am afraid of nothing, but I do not know how it is I am so weak." He said he had taken some fluid through his pipe very lately, and requested that he might not be asked to take any more now: his whole voice was one of distress and anxiety. Pulse 136 to 140, rather weak. On being asked if he would like the air of the fan, "God bless you, sir, don't do it; a gentleman did it just now and it gave me such pain!" He ate a little slice of apple, for which he asked, as being acid.

Half past 9. He attempted to suck up a little water and a little porter through the pipe. He said, "I don't know how it is, but I go on fiddling here half an hour before I can draw up the water; but let me do it slowly; I will take my time; for God's sake don't ye hurry me!" As soon as a drop reached his mouth, he drew a deep spasmodic sigh, then cast up his eyes—as much as to say "I cannot do it." He was be-

coming much more talkative and irritable; he seldom stopped talking, but it was always the same expression—of his wish to do everything he could, his desire for fresh air, &c. Mr. Stocker observed at one time this morning, that when he took up a jelly to offer him, he immediately shrunk from it. We reminded him that yesterday he had attempted to drink out of the cup: "Oh! for God's sake, gentlemen, don't ye talk of it; indeed I would if I could, but I cannot, it does make me so bad." We talked to him of his way of drinking by dipping his fingers: "Yes," he said, "that I will try:" then he began to move very slowly, raised himself with great caution, put out his hand for the cup; and when he had got it in his lap, turning his head to one side, he dipped his fore-finger only into it, brought it up very slowly indeed to his lips, rubbed the moisture along the lower lip, then licked it with his tongue. This he repeated three or four times, and then touched the tip of his tongue; but even this seemed to fatigue him so much that he soon left it off.—Tongue much more furred and brownish, except quite at the edges, where it was more of a purple-red and rather moister.

11 o'clock. Dr. Laird, Dr. Back, and others, went to the room:—he denied any pain whatever; said his thirst was much less than it was yesterday: tried to take fluid through the pipe: some beef tea was given him; but I do not think he got many drops into his mouth, though; as he thought he sucked it up, he said it was very pleasant. He complained now, for the first time, of the flies, which he attempted to drive away with his hand. Pulse 140: temperature of body under axilla 98°: he had had four stools, the last full of white flakes, and a little rose-coloured mucus, as if stained with blood.

It was determined that the hydrocyanic acid should be repeated, and accordingly eighteen drops were made up into boluses. He got one of these down with great difficulty, but the second caused violent irritation and coughing to bring it up, in which effort he was thrown into convulsive action, and turned himself on the side of the bed. It was curious to see the resolution with which he had determined to take this pill; for finding that the first had been got down with difficulty, he proposed that the next should be covered with butter, to make it slip down more easily, which was done; but the pill did not go down, and it was thought prudent not to persist. It happened about this time that one of the young men, quite unconscious of doing wrong, but very thoughtlessly, cried out, pointing to some mark on his hand, "Is this the wound?" In a moment the man's countenance changed; he became very pale: "What wound, sir? what do you talk about a wound? I was asked yesterday twice about a wound; I was never wounded; I am sure, gentlemen, I would tell you everything." We attempted to pacify him, and persuade him that the question meant nothing. I entered into a set of questions, about his sea service, all which he answered; but then at once reverted to the wound—"I know there is something in it; I do want to know what it is; I assure you, gentlemen, I would tell you in a minute." His anxiety appeared to be chiefly that we should not suppose he wished to deceive us; but it was a most distressing state of mind,

and to pacify him seemed hopeless : the matter however passed gradually from his mind as the symptoms became more urgent. It certainly appeared, from his way of questioning about what this wound meant, that he had no idea whatever of the real import of the question ; his manner was alarmingly urgent, and most impressive.

About half-past 1 o'clock I was told that he seemed much worse. When I came to the room I found him on his knees in his bed, supported by the two nurses ; his face pallid and most anxiously dejected ; calling for his wife, praying and exclaiming to Heaven, " I know you are trying to keep my dear wife from me ; pray, gentlemen, let me see my wife before I go hence ! O dear Christ, take me to yourself ! " At times he was seized with catchings, apparently of the diaphragm ; then he would make a hasty, I may say passionate, hawking noise in his throat, and then with violence spit on the ground : " I beg your pardon, gentlemen, I cannot help it. " I tried to persuade him to lie down, for his pale shrunken face was covered with perspiration and he seemed faint : I told him he would be more comfortable lying down : " I shall never be any more comfortable in this world : O Christ, grant that I may live to see my wife once more ! " Then a violent spasm almost overcoming him, he sat with convulsive haste on the side of the bed, and presently was got in a reclining posture in his bed. He here continued his vociferations still more loudly, declaring he had never injured any man, and looking towards the window with extended arm ; " Ah ! this is the blessed afternoon when God will take me to himself ; the day is beautiful, but it will be more beautiful presently, I hope : " and thus he raved on incessantly. His wife came ; he knew her well, blessed her, and told her to be good. What passed after this I do not exactly know, but he grew more and more violent ; and some man coming who said he should not remain in the Hospital, but should go home ; he joined in the cry, and declared that come what might he would go home. He rose from his bed, and partly supported by his friends, he tottered like a drunken man through the ward, declaring that he would go home, and giving very severe blows with his fists to several who opposed him. His friends at length seated him in a chair, in order to carry him out of the Hospital ; but a little before they came to the steps, he sprang from the chair and attempted to escape from them : he was raving, and it was found necessary to shut the gates to prevent his running naked into the outer court of the Hospital. He was by this time almost exhausted, and sunk back into the chair, still vociferating, till he fell into a state almost of insensibility, his head fell back, and it was scarcely possible to discover in the livid cheeks and the dark parched lips the features of the strong, powerful, I may say healthy man, who but forty-eight hours before was able to fulfil all his laborious occupations, and who but twenty-four hours ago, when brought to the Hospital, still bore scarcely the aspect of disease. He was carried back to his bed ; he never recovered to speak again, but suffered some violent convulsions, in which he threw from his mouth some dark-coloured frothy mucus with saliva, and at a little

past 3 o'clock he died ;—the whole period from the first appearance of symptoms being less than forty-eight hours.

#### SECTIO CADAVERIS.

The body was examined twenty-five hours after death. The muscles of the whole body, and still more particularly those of the limbs, were remarkably rigid, and the hands were firmly clenched. The colour of the back on all those parts where pressure had not been made, was violet. On the shoulders and nates, on which the body had rested, the skin retained its natural colour. The countenance was most serene. The blood was remarkably fluid, and the internal lining of the aorta was stained of a bright vermillion colour.

A small quantity of serous fluid escaped from beneath the dura mater when it was divided. The arachnoid was rather more distinct than usual, from a slight serous effusion into the cellular membrane immediately below it; this serum was quite colourless. The vessels of the pia mater were more injected than in the perfectly natural state. Two bony concretions were found in the falx cerebri; one projecting on the right side, of a flat conical form, nearly an inch in length and half an inch broad; the other on the opposite side of the falx, about half the size, and nearly of the same form; each of these was covered with one thin layer of the membrane in which it was formed; but they were very easily torn from their attachments; their colour was a little more purple or violet than that of the membrane itself.

The substance of the brain was firm, and its colour rather more pink throughout than usual, and presented besides a great number of bloody points. The convolutions were remarked to go very deep into the substance. The ventricles were more dry than usual; there was a very small quantity of serum in each posterior cornu and in the fourth ventricle.

The choroid plexus on each side was of a dark-red colour, and contained a few small vesicles. The velum interpositum rather unusually loaded with blood. There were a few distended vessels immediately above the plexus. Pineal gland quite free from gritty matter. No unusual appearance in the cerebellum.

Whilst laying open the spinal cord, it appeared that the theca was full, and almost distended with fluid; but in attempting to collect it, in order to measure the quantity with exactness, so much blood ran from

the jugulars and carotids, that accuracy was impossible ;—from what was collected first, quite free from blood, we estimated it at between three and four drams. The spinal cord was completely removed ; and the theca being opened, no morbid appearance whatever presented itself. A few small vessels filled with florid blood ran along its surface, but not more than natural. Internally it was healthy.

No fluid was found in the cavity of the chest. Lungs healthy in structure, but loaded with a large quantity of dark blood, so that on cutting into them, the half-coagulated blood in the vessels gave the whole the appearance of dark red-currant jelly. Not the least adhesion either to the diaphragm or pleura. The heart healthy. No more serum in the pericardium than natural. The fatty matter at the lower part of the anterior mediastinum was remarked to be of a more pink colour than usual.

A little bloody mucus lay in the pharynx, and the posterior part had a purple blush upon it. The trachea was of a deep chocolate colour from the epiglottis throughout its whole ramifications ; darker between the rings, and showing on the edges of some of the rings a deep red blush. The internal lining of the œsophagus was natural, having, perhaps, a reddish-purple appearance near the termination of its cuticular lining in the stomach. On the large curvature of the stomach, nearer the cardia, a few veins ramified beneath the villous coat, and a space of two or three inches was occupied by more florid starlike bloody spots, seeming effused on the villous coat : and near the pylorus a greenish purple diffused stain was seen. Liver rather granulated, and bearing the appearance of some chronic derangement, but there were no adhesions. Intestines quite healthy.

#### CASE CCLXXXIV.

##### *Hydrophobia, treated with Subacetate of Lead.*

PHILIP FARREL, aged about 44, residing in a court in Gray's-Inn-Lane, a stout, large, but not a full-bodied Irishman, a farrier by trade, had been subject to severe cough for several years, and to occasional dizziness in his head, and was always easily affected by liquor. On Whit Monday, May 23rd, 1825, he drank three glasses of brandy in the morning, and dined with his club at Cumberland-gardens, where, he says, he only drank a pint of porter. Early in the evening he felt unwell, and left the party ; but he was weak, and particularly complained of



feeling much out of breath, so that he was a long time getting home, where he did not arrive till about 10 o'clock. He became so unwell, that about 1 or 2 o'clock in the morning (May 24th) his wife sent for Mr. Whitmore. The impression this gentleman received from the messenger when first called was, that the man had come home drunk: but on entering the small room where he lay on his bed, he perceived that his appearance was very peculiar, and that he expressed great dislike, amounting to a kind of horror, at the opening and shutting of the door, or the blowing of any breath from the mouth upon him: this first suggested to Mr. Whitmore the idea of hydrophobia; and he began to ask respecting any bite he might have received from a dog. It was no easy matter to make him recall, or at least confess, any injury of the kind: however, he presently did admit that about three months before, he was called upon to administer some medicine to a little pug-dog belonging to a lady, which was supposed to have been poisoned, and which afterwards died, but some supposed from poison, others from being over-fed,—it was not known that it was from rabies. This dog bit his finger and his thumb, so much, that his wife remembered that she was obliged to bind them up for some days. Mr. Whitmore endeavoured to ascertain the exact scars of the bites; but owing to there being several upon the fingers, and the man not being able to say which, but pointing to different scars at different times, Mr. Whitmore did not make any local application, but immediately took away from thirty to forty ounces of blood in a wash-hand basin, which it nearly three-fourths filled, and this produced no faintness.

It appeared that for some days previously the man had complained of some rheumatic pains in his arms, or his arm, I do not know which.

Dr. Lambe and Dr. Bostock saw the patient in the forenoon.

*Admoveantur Hirudines x. scrob. cord., et Cataplasma Lini postea. Injiciatur Enema ex Assafœtida, et postea adhibeatur Suppositorium ex Extracti Belladonnæ gr. v.*

It was thought he could not swallow, and therefore nothing was ordered by the mouth.

I first saw him at a quarter past 4 o'clock in the afternoon; at which time Dr. Roget was also at the consultation. The man was sitting in bed, with a countenance of much anxiety. Pulse 88, irregular: pupil natural: from time to time he took a very quick, difficult inspiration, which seemed an effort between a sigh and a hiccup; it was a kind of sob. This occurred every fifth or sixth inspiration: he expressed the greatest apprehension on opening or shutting the door, and every now and then became more agitated. He said, he thought he could take medicine, if it were made up in pills: he denied having any pain, but dreaded the coming on of what he called "the fit," which was a kind of spasmodic agitation in the respiration: his bowels had been opened.

It was thought by those who had seen him before, that he was somewhat more

composed than he had been, and I saw him take down a large spoonful of liquid; he seemed to do it with convulsive resolution, and as he gulped it, held up his hands and arms in the air as if using the most extreme effort to swallow.

R Plumbi Subacetatis ℥j,  
Extract. Belladonnæ gr. viij,

In Pilulas quatuor divide, quarum sumat unam secunda quaque hora.

Applicetur Emplastrum Cantharidis amplum inter scapulas.

At 11 o'clock P.M. I met Mr. Aikin and Mr. Whitmore. Three of the pills had been taken, and the blister applied: there was little sensible alteration in his state, but the pulse was quicker, and very irregular, sometimes 100, sometimes above 120, in a minute.

R Plumbi Subacetat. gr. xxviii,  
Extract. Belladonnæ gr. viij,

In Pilulas quatuor divide, e quibus sumat unam secunda quaque hora.

About 1 o'clock A.M. (25th) he became very delirious, getting from his bed, determining to go down stairs, forcing his way down, going into the back court; in short he was so violent, that the persons about him were obliged to confine him in a strait-waistcoat, and get two men to be constantly with him.

Half-past 8 A.M. I met Dr. Roget, Dr. Bostock, and Mr. Whitmore at the patient's house: he was now perfectly incoherent; his countenance haggard; his articulation indistinct; as he sat on the side of his bed presenting a most pitiable appearance, he constantly talked incoherently; yet after some persuasion he put out his tongue, which was tolerably moist. He was now coughing, throwing up much mucus, and with a kind of effort to vomit, also some brown grumous fluid, not unlike coffee-grounds, which the people about ascribed to his having *eaten* tobacco; but there was no smell of tobacco in it, and it appeared like blood altered in the stomach. I remained with him almost an hour, during which, at one time he fell into such a state of collapse that I thought he would die immediately; however, he rallied, and again became spasmodically affected; and as he could now swallow pretty well,—for he drank nearly two cups of tea,—we gave him forty drops of Goulard's extract, on sugar, which he took without difficulty. About 11 o'clock he died,—being about fifty-seven hours from the time he was first visited.

#### SECTIO CADAVERIS.

The examination took place about five hours after death.

The spinal cord it was impossible to open, from the inconveniences to which we were exposed.

The skull was unusually thick. The brain healthy in every part; no unusual vascularity; no unusual collection of serum in the cavities: the

arteries of the basis in no respect unhealthy : no bone deposited in any of the membranes. Some of the vessels seen on the brain had bubbles of air in them, most probably admitted on removing the brain ; the blood in the larger vessels of the basis perhaps rather dark-coloured.

The liver of a drab-green, rather soft. Gall-bladder much distended with bile, apparently healthy. Stomach large, and relaxed in its texture, full of greenish-brown fluid, and showing two or three very large vessels, and several small ramifying vessels like the dendritic marks on *Mocha* stones. Intestines healthy, containing very little feculent matter. The spleen had a cartilaginous patch on its convex side, and was rather large, but otherwise healthy. Kidneys healthy.

Lungs unusually adhering by old firm adhesions : no fluid in the cavity of the chest. The lungs were dark-coloured ; did not afford a very natural crepitus, and were rather doughy under the feel. The larynx perfectly natural : the trachea quite of its natural yellow colour, but smeared over with a great quantity of frothy mucus, which increased on descending, so that at the bifurcation it quite clogged up the openings. The lining membrane of the bronchi at this part appeared more congested.

The œsophagus very natural ; the lining membrane attached as firmly as natural ; no appearance even of congestion.

No more fluid than natural in the pericardium. The heart presented no morbid appearance. The large vessels near the heart were quite healthy.

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This case of Hydrophobia is in all respects well marked, the symptoms appearing about three months after the infliction of the bite. We may certainly date the symptoms as having commenced when the man left the club with which he was drinking, a period of about sixty-three hours before his death : the secondary local irritation appears to have been slight or overlooked. The employment of the subacetate of lead was suggested by a case published some time before, in which it was alleged to have proved successful ; but to the extent it was used in the present case we could discover no salutary effect. The examination after death afforded no appreciable change in the cerebral structure or circulation, and a congested state of the lungs, which I have very generally observed in this disease, was almost the only morbid appearance.

## CASE CCLXXXV.

*Hydrophobia,—the Patient surviving nearly seven days after the first symptoms showed themselves.*

— DAVIDSON, a man of about 30 years of age, was admitted into Guy's Hospital, Thursday, February the 9th, with such symptoms, that Dr. Back, Mr. Morgan, and Mr. Callaway had the immediate conviction that he laboured under hydrophobia. It was found on inquiry that he was a man of dissolute and unsettled habits, by turns a waterman and a travelling showman; and that about ten weeks before, he had been bitten by a dog which he was washing, and which afterwards bit a woman, and was killed; and his mind had frequently been directed to this circumstance by the jokes of his companions. He had remained well till Monday, the 5th, when he had complained of pain in the arm which was bitten; and on that day began to complain of a difficulty of swallowing, and scarcely had he swallowed anything since that time.

When brought to the Hospital, he appeared perfectly collected; but when taken from the carriage seemed quite overcome by the action of the air upon him. He consented to be bled; but when he found that he was so great an object of curiosity, appeared greatly alarmed and apprehensive, becoming exceedingly irritated, and, in the opinion of some around him, from this time was to be dated the period of his delirium coming on; and it was observed, that the sight of the glazed basin in which he was to be bled gave him great uneasiness.

The whole night was passed in raving, like mania. I saw him first about half-past 9 on Friday morning; he was then standing in his shirt, raving and talking incoherently, sometimes showing marks of great violence: his feet and hands seemed very cold; his eyes not at all blood-shot, but rather clear; his tongue white. He would not suffer any one to touch him, or feel his pulse; and he refused with violence every thing like medicine or nourishment that was offered to him: the bandage had partially slipped from his arm, and it was bleeding, but he would permit no one to bind it up; he tried with his teeth and the other hand to tie a handkerchief around it; and at last told the nurse that she might help him. He said, "Why, you know, I shan't be here long; I shall die to-night."—His face was now and then agitated, and his tongue quickly moved over his lips, on which occasion we could see that it was furred. When I attempted to persuade him to lie down in bed, he answered, that he was well; he wanted to go out; he could do this, or that, if he might go out: and he then began to talk incoherently in the relation of some facts which had occurred respecting a sister of his in another Hospital: he talked firmly and violently; and once I observed spoke of some men under his bed. On one occasion, the nurse began to spread the bed-clothes on his bed, and waved the blanket: he immediately jumped back with a terrified shrink and a spasmodic action of the diaphragm. "Why do you do that? you know you take away my breath," he exclaimed with earnest anxiety. It was observed

by those who saw him most, that he was very timid even when most raving, and was easily overcome.

In the course of the morning he was secured in a strait-waistcoat, for it was found that by raving and talking he was exhausting himself: he was then got to his bed, and of course, being confined, lay comparatively tranquil. The air from the door molested him exceedingly; and he seemed so much to dread lest any one should blow upon him, that he occasionally accused those who stood round, unjustly, of blowing. When, however, a decided blast came upon him, or when any object was waved briskly before him, it produced a spasmodic effort and a convulsion, in which not only the diaphragm but many of the voluntary muscles of the neck and face were thrown into action, his head twisted and face convulsed; on which occasion his teeth made a grinding noise, heard over the little room. His pulse was now 110: he was observed frequently spitting about the room, but seemed desirous that it should not touch those around: he apologized to me once, because he thought some of his saliva had fallen on my coat. He continued during the whole morning talking with the utmost incoherence, yet answering questions or rebutting requests with great shrewdness. The nervous irritation was certainly kept up and increased by the number of young men who were naturally anxious to gratify their curiosity by seeing him. He seemed in some degree to distinguish persons. When one young man, who had been a good deal with him, and tried to induce him to take support or medicine and to lie quiet during the night, spoke to him, he answered, "I think, young man, you have got a great deal to say for yourself; I think you had better mind your own business."—"Here," said he, turning to me, "Come here, and I will tell you something that will put you in the way of making a hundred guineas very shortly;—yes, that I will." Such is a specimen of his mode of talking. I once or twice during the day saw him attempt to drink. Water in a little tin cup was given to him: he was asked whether he would prefer porter, "No, no, water will be the smoothest."—He was then raised in his bed, and the cup brought to him: he gave several convulsive struggles, pushed himself further down in the bed, and further still by leaning against the person who supported his back, till his feet were quite out at the bottom of the bed; then telling the person behind to press his back well, he began to take the cup in his hands. As he was a little urged to drink, "Well, I will directly; you know I can't do it in a hurry; do give me a little time." Then he grasped the cup with his hand,—put it down on the bed,—covered up with his hand all but the little orifice for his mouth,—brought it towards his head,—put it down with convulsion,—almost gave it up,—made another effort, and so on; till at last, getting it to his lips, he made two or three convulsive gulps, and swallowed a little of the water. At another time, being requested to drink, he would not put the pot to his mouth, but gradually brought a spoonful at a time to his lips; and as he swallowed with convulsion, he almost immediately made an effort as if to eject it from the mouth, at the same time spitting out saliva, which he did frequently; but in general in small quantities, and of a viscid frothy character. Pulse rose in frequency to 130.

In the evening,—he being still much in the same state,—it was resolved to try an injection with half an ounce of rectified æther, and to repeat it according to the effect produced after two or three hours. After the first injection he enjoyed nearly an hour of tolerable sleep. In the course of the night, half an ounce of tincture of opium and two or three injections of the æther were administered.

I saw him at 12 o'clock on Saturday, the 11th. His state had not greatly altered, but his countenance was rather suffused; and he was evidently under the action of opium, so as to be quite drowsy, though still talkative: and when he was set up to try to take some fluid by sucking it through a pipe, he had to contend both with the difficulty of swallowing and with the difficulty of keeping awake, and actually seemed to go into a doze while the pipe was in his mouth. "Are you sleepy, my man?"—"To be sure I am; that's the reason I cannot drink." However, it was quite evident that there was a still stronger reason, from the care he took to conceal the fluid with his hand. Upon the whole, great uniformity was observable in the symptoms the whole of the day (Saturday). He took no medicine; he continued in a deranged state; was agitated by the rapid approach of anything; complained of the air from the door; was more or less excited according as more or fewer of the pupils came to see him. In the evening, at 7 o'clock, I saw him again. Pulse 130, soft but weak: his whole manner very little changed, but he was still convulsed frequently about the fauces.

10 o'clock P.M. A gentleman who came to see him, very incautiously began to ask where he was bitten, and wished to see the part. "Have you any pain?"—"Yes, but not there," was his answer. It was not given with such strong indication of alarm as I should have expected, but still with a kind of effort; I could imagine that it brought a painful recollection into his mind, which he was determined to conceal. We examined the scars, however, as we had not before seen them: they were purple, as if recent or as if cold.

Sunday morning, 11 o'clock. He took some colocynth pills yesterday, and had a purgative injection, which had produced motions. His aspect was more sunk and squalid; his lips purple; his tongue purplish, with white fur. He muttered in a delirious manner—"Well, I deserve what I have got, and what I shall have too:" then he made a muttering complaint at the air from the door. And when I asked whether I should shut it, he nodded assent. He seemed to see objects in the wall before him. I thought he was sinking; however, in half an hour he had rallied again, and was almost as yesterday: his pulse was from 140 to 150.

Habeat Hydrarg. Submuriat. gr. ij; Extracti Hyoscyami gr. v tertia quaque hora.

This day passed nearly in the same way, but he was much more tranquil, and became gradually weaker. At 11 o'clock at night he drank some porter and gin, without so much difficulty as before: and at about 12, after making two efforts, which sounded like violent expirations, he died. He had lived seventy-four hours after his admission into the Hospital, and about the same time, probably, after the coming on of the symptoms of mental derangement; but it was the seventh day from the first symptoms.



The chief peculiarities in this case, were the long duration of the whole (nearly seven days), and the early appearance of the mental derangement. The character of the derangement did not vary much from what I saw in the patient in Gray's-Inn-Lane: there was less of that eager desire to do what he was bid, which is usually found: but in fact, this generally occurs before the obvious mental affection comes on; and in this case we might well expect that the unrestrained and low habits of the individual would render him more self-willed in his conduct under derangement.

#### SECTIO CADAVERIS.

The examination took place twelve hours after death.

The back and back part of the thighs and body of a deep violet purple, except the nates and shoulders, on which the body rested. The limbs were still stiff. The cicatrix of the wound was cut down upon, but nothing peculiar presented itself.

On removing the skull, nothing remarkable appeared. When the dura mater was raised, a small extravasation of blood, of the size of half a six-penny piece, was seen on each posterior hemisphere. Brain perfectly healthy in consistence: a few more red points than natural in the posterior part of the cerebrum. Pineal gland rather small, and containing no gritty matter. The ventricles contained quite as little fluid as in health. Cerebellum a little soft throughout. Locus niger natural: no disease to be found.—The spinal cord was carefully removed. About the ninth dorsal vertebra there was a slight appearance of extravasation on the outside of the dura mater; and the substance of the cord at this part appeared softened throughout for the space of about a quarter of an inch.

Œsophagus natural. Stomach with very little morbid or deranged appearance, yet still having a few spots of dendritic vascularity, and in one place a mark of slight ulceration of an oval form,—an appearance I have also seen in the stomach of a dropsical patient, and much more extensively, following the course of veins, in a man of irregular habits dying with symptoms of fever; and in the stomachs of one or two others who have suffered from protracted disease.—The stomach contained green fluid. Liver flabby, and still rather gorged with blood: left lobe elongated, but quite natural in structure. Gall-bladder pretty full of yellow bile. Spleen very healthy, looking naturally corrugated or flaccid. Intestines healthy in

their internal and external coats. Mesenteric glands a little enlarged. Kidneys quite healthy. Trachea and bronchi rather purple from venous vascularity, increasing towards the lungs. The lungs dark-coloured, particularly at the back part, with some watery as well as bloody infiltration. The lungs were contracted,—indeed, it was evident that a most complete expiration had immediately preceded death. The heart healthy throughout. The aorta very white and healthy internally. The cœliac and other ganglia quite healthy. The cervical ganglia of the great sympathetic beautifully white.

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When we look back upon the few cases which have just been detailed, we find in them an epitome of the chief symptoms and circumstances which attend this dreadful disease,—a disease which we are accustomed to look upon with horror on many accounts, but chiefly from the consciousness which we feel, that as yet we possess no certain means of arresting its progress. One encouraging fact, however, is to be collected from all the cases which have afforded the opportunity of examination after death,—that there is no such fixed or constant appearance as would lead us to believe that any organic change has been induced; and we may therefore fairly consider it a functional disease, and confidently hope that means may yet be discovered by which it will be successfully combated.

It will be seen by a reference to the above cases, that many of the subjects of the disease were rendered irritable by the abuse of spirituous and fermented liquors, by which they might be said to have reduced themselves to the condition of those who are attacked by delirium tremens; and it is not improbable that there are certain states of the constitution which predispose to this as to other diseases of the nervous system; and there may be even some predisposition induced by chronic organic changes, whose only direct effect is to increase the general irritability. Thus in one of the cases which I have stated, two considerable deposits of bone were found on the falciform process of the dura mater: and in a case examined at St. Thomas's Hospital in the month of May 1830, the only morbid appearance, as I was informed, (except a slight discolouration of the stomach,) was a deposit of small plates of bone on the arachnoid of the spinal cord, such as I have described in a fatal case of Chorea, page 491.

It will be observed, by referring to cases generally, that the wound from which the disease has originated, has been inflicted upon some exposed part quite unprotected by clothing; and this will be found the fact in all those I have related. It will be observed, likewise, that in none of these cases had the complete excision of the part been attempted immediately on the infliction of the wound, though in three instances caustic had been applied. There has generally been a distinct reference to some painful sensations about the injured part, towards the period when the symptoms have first appeared,—not unfrequently a kind of concealed dread has for some time existed, and often an indulgence in intemperance, when such was rather the occasional than the fixed habit of the individual.

The length of time which has elapsed between the wound and the symptoms in cases of Hydrophobia has varied considerably; seldom, I believe, has it been less than six weeks; in one of the above cases a period of four months had passed: but longer intervals than this are upon record; so that well-authenticated cases of eight or nine months are related; and I know two or three very judicious medical men who are pretty fully convinced that in one case which came to their knowledge, three years had intervened between the bite and the fatal symptoms. To speculate on the state in which the morbid influence exists during the singularly prolonged period of its concealment, would be little more than hypothesis: but it appears probable, that for some considerable portion of that time it is confined to the neighbourhood of the primary wound; and the secondary local action, which so often precedes the appearance of symptoms, leads to the belief that some excitement of the part is necessary, or at least frequent, before the constitutional disease is developed, or perhaps produced.—These considerations lead to one very important practical inference,—that the excision of the part will probably prevent the disease, though performed a considerable time after the accident; and to this we can of course place no limit, except the actual appearance of the disease: when that has once established itself, we have in a case which is above recorded, a strong evidence of the inefficacy of an operation.

As regards the symptoms of the confirmed disease, they bespeak the highest state of nervous irritability; and affecting, as they do, almost exclusively in the first instance, the functions of respiration and deglutition, and in some degree the circulation, they seem to be immediately

dependent upon some morbid action excited in the nerves of organic life, or that particular set of nerves which has been so beautifully illustrated by Mr. Charles Bell as connected with the respiratory apparatus :—and looking to the large proportion of those who are bitten, yet who escape entirely from the disease, it may perhaps arise as a legitimate question, whether it is not one of the conditions necessary to the production of the disease, that some nervous fibre immediately connected with that system should have been wounded ?

It is quite evident from the foregoing cases, that the treatment, where a bite has been inflicted by a rabid animal, must consist in measures adopted with a view to prevention rather than with a view to cure ; and there can be no doubt that it is our duty to have recourse to the most complete excision in the first instance, and then to attempt to produce and keep up a discharge from the part, in order to remove the injury as decidedly as possible, and to establish some other action in the wound. Whether there be any benefit derived from the exhibition of such remedies as are supposed to produce an alterative action on the system, more particularly mercury, is a matter of conjecture ; but much stress is laid upon this mode of treatment by many continental authorities. One circumstance, however, always throws a shade of uncertainty over the efficacy of all prophylactic means, which is the fact—that a comparatively large proportion of those who have been bitten escape without injurious consequences, even though no precautions whatever have been used. When the symptoms have once made their appearance, it is probably too late to hope to arrest them by removing the injured part : for whether the disease depend on absorption of a virus hitherto latent, but now carried into the circulation ; or on an action of the nerves now first excited,—it appears that the mischief is no longer local, and that the chains of communication have probably acquired the power of continuing the malady, or of producing it afresh in other parts.

We now seek for some remedial means ; and, unfortunately, have always to spend a portion of the precious hours in endeavouring to collect our thoughts and determine on our mode of action ; and are often ready to adopt any untried method of treatment, from a knowledge that failure has attended all which have hitherto been employed.

Putting all experience aside, except as proving the inefficacy of former plans, and looking to the analogies of disease, we shall perhaps be induced

to trace a slight resemblance between Hydrophobia and one or two of the diseases which we have been lately considering ; more particularly Tetanus and Hysteria : and if this be admitted, we shall naturally ask how far we are capable of imitating the treatment by which these diseases have been relieved. Here, then, we have new difficulties to contend with ; for no sooner are the symptoms discovered, than we find ourselves deprived of the power of freely administering remedies : and this it is which renders every fresh case not only a new experiment, but necessarily an incomplete and indecisive experiment ; for while we find it impracticable to introduce medicine frequently or largely into the stomach, we are even prevented in a certain degree from making external applications, which seldom fail to increase the present suffering, or to be resisted with violence by the patient. Guided then by analogy, and certainly not by experience, I should wish to adopt cupping, leeches, moxa, and blisters about the nape of the neck and the upper part of the spine ; and I should wish to have recourse to the mineral tonic remedies, combined with some of those diffusible stimuli which have an undoubted efficacy in calming the irritability in many hysteric attacks. The difficulty of swallowing, and the apparent sluggish action of the stomach, would suggest the propriety of endeavouring to introduce our remedies by means of injections into the rectum ; and I should propose for this purpose the muriated tincture of iron, as being a powerful chalybeate in a fluid state, and in some cases possessing the quality of allaying spasmodic action. I am, however, but too well aware of the difficulty of administering repeated injections ; for in the very last case in the treatment of which I was consulted, nothing could induce the patient to submit to a second exhibition of the tonic suppository and injection which I had prescribed.

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Looking to the examination after death, we find little but negative evidence to assist us in discovering the real nature of this disease. In the brain the utmost morbid appearance is some trace of such chronic derangement as may possibly have predisposed to the excessive irritability attendant on the disease, and some marks of vascular turgescence, even leading to slight ecchymosis, much of which may have arisen as a consequence of the repeated paroxysms and the obstructed respiration. The same may be said of the appearances in the spinal cord, which are generally very insignificant, or are open to much doubt ; nor do our researches in the ganglia

and the nerves carry us any further. The vascular appearances which have been seen in the fauces, the pharynx, the œsophagus, and the stomach, are by no means constant, though they often exist: and in one case which I saw examined, the attachment of the whole lining membrane of the œsophagus to the subjacent tissue was in a remarkable way weakened, so that the membrane was drawn out with the greatest facility like the finger of a glove; and I have heard the same condition described in another case. All these appearances, however, vary so much, that they must be considered the evidence of effects rather than of causes. The most marked deviation from health is usually found in the lungs, where great congestion is often discovered, and the lining membrane of the trachea and bronchial tubes is of a completely chocolate colour from the same cause. The obstruction to the passage of the air is often so great, or the sudden exertion in respiration so strong, that it is by no means uncommon to find that a partial emphysema has taken place, and that the air is thrown out into the cellular membrane which connects the different lobules of the lungs;—but this is only to be considered a result, and is occasionally found in other convulsive diseases, as in Epilepsy.

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With the subject of Hydrophobia the present section is brought to a conclusion: and I trust that the perusal of these imperfect illustrations of the various diseases arising from nervous irritation, will serve to show such a connection between them, that while their characteristic symptoms are in every case so marked that little difficulty can arise in respect to diagnosis, one general character will be seen to pervade the whole; and one general plan of treatment, modified, indeed, not only in each distinct disease, but in each individual case, will appear to suggest itself in all. Amongst the diseases which have been treated of in this section, Epilepsy alone affords frequent examples of obvious organic lesion; and this affection so often exists without the slightest trace of structural change, that we are induced to suppose, even in those cases where structure has been most affected, that this change has not been *essential* to the production of the symptoms; and that probably in a majority of these cases the first epileptic seizures have rather been the evidence of that morbid action and of that vascular derangement which has accompanied the commencement of disorganization, than the evidence of the confirmed organic change.



although this organic change, when once produced, and the actions excited by its presence and for its maintenance and growth, afterwards become continued causes of irritation, and consequently of the symptoms marking epilepsy.

We come then to the important conclusion ; that no symptoms of nervous irritation, however severe they may be, necessarily bespeak organic disease, and therefore that none are beyond the sphere of rational hope, or ought to preclude the prudent employment of the means with which our art has furnished us : and looking to the most effectual remedies in milder cases, we form our line of practice in the more severe :—that practice proceeds on the idea that irritability depends upon diminished tone, and is apt to be accompanied by congestion ; and that a certain state of the vessels, either with or without organic disease, is often the irritating cause :—that, therefore, sanguineous depletion may be necessary either to relieve the brain from blood which is depressing the nervous power, and is in this way truly a source of diminished tone ; or to take off such partial congestions as arise in the course of the disease ; or to allay such local actions as may precede important organic changes, or may be afterwards induced by morbid structure : but that sanguineous depletion is to be used with caution, because it has, when unnecessarily employed, a direct tendency to diminish tone and increase irritability :—that purging, for nearly the same purposes as bleeding, is often useful ; but is much more frequently admissible, as it tends to promote more healthy actions without diminishing power :—and that when obvious sources of irritation and obvious depressing causes are removed, it is to those remedies which more directly allay irritation, and to those which increase the tone, and thus diminish the irritability of the system, that we are to look with the greatest confidence ; for which purposes the mineral preparations, as those of iron, zinc, arsenic, and silver, are powerfully efficacious, and may be occasionally administered with hyoscyamus, combined with camphor, and some of the diffusible stimuli, which of themselves often act very favourably.

Such are the general views to which the perusal of the foregoing cases is calculated to lead ; but their individual application in those diseases whose treatment has hitherto proved so unsuccessful as to afford little hope of cure, must be left to the circumstances arising and changing in each individual case.

## INANITION.

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It was my intention to have here introduced in a distinct section such cases as would illustrate the effects of INANITION or deficient circulation on the nervous system. But this I have for the present abandoned ; not because I appreciate lightly the importance of the subject, but because this work is already sufficiently protracted, and because it is probable that any cases I might adduce would add little to what has been lately brought before the Profession by Dr. Hall ; and, that what I could say upon the subject would fall short of the value of the observations he has made, united to those of Dr. Abercrombie, and the beautiful and illustrative statements of my lamented friend Dr. Gooch.

It is enough for my present purpose to say, that in every case of cerebral oppression and cerebral irritation, we must bear in mind the importance of ascertaining that no urgent cause of depletion, and no circumstance likely to have produced a state of inanition, has existed, or continues to exist, before we proceed upon the idea that the symptoms depend on vascular turgescence or over-action ; for, extraordinary as it may at first appear, there is no doubt that most marked irritation, amounting to the severest epileptic convulsion, and most excessive depression, going on to coma and terminating in death by serous effusion, are the frequent symptoms of the exhaustion attendant on the profuse loss of blood, and the debility occasioned by disease.

These facts are most frequently illustrated in menorrhagia, in the protracted diseases of children, and in the occurrence of that state of epileptic syncope which attends the operation of bleeding in some individuals. It is possible that many of the symptoms, as intense head-ache, throbbing temples, and noises within the head, do arise from an actual state of congestion or irregular violent action at the time, which debilitated circulation often favours ; but it must be confessed, that after death the brain seldom affords any proof that such a state of its vessels has existed, and leads us to believe that there is some more specific change, which the imperfect supply of blood to its intimate texture has induced, rendering it peculiarly susceptible of irritation. Without going further for illustrations, we need only look to the cases in the present volume, and we shall see the Irritability of Delirium tremens reduced by a generous diet, the Convulsion of Chorea yield to increased stimulus ; and the protracted Emaciation of Phthisis lead to serous effusion in the brain.

## ADDITIONAL CASES

ILLUSTRATIVE OF VARIOUS SUBJECTS REFERRED TO IN THE FOREGOING PAGES.

### CASE CCLXXXVI.

(To precede Case I.)

*Extensive Laceration of the Brain and its Membranes ; with Symptoms of recent Inflammation.*

FOR the notes of the following case I am indebted to my friend Mr. Ebenezer Smith, on whom the care of the patient chiefly devolved.

"THOMAS CUSS, aged 22, a stout countryman, applied about 1 P.M. on January the 4th, 1830, at Guy's, on account of a wound in the left eye-lid, inflicted by an umbrella-point, which had entered the orbit from without to within and backwards. He would not allow any examination of the wound ; but when put to bed, complained of severe headache and of thirst. An hour afterwards he vomited blood. At about a quarter to three o'clock he became so violent as to need a strait-waistcoat. At nine, his pulse having become full, strong and frequent, with intense headache and delirium,—before attributed, from its obscure character, to intoxication,—he was bled till a decided effect was produced on the pulse, and thirty-five ounces were abstracted. A purgative was then given, and he dozed quietly for a quarter of an hour. During the afternoon he was for some time capable of conversing, and gave a collected account of his injury to another patient in the ward. At midnight his face became rather drawn and pale : at 3 A.M. difficult respiration came on ; and he gradually sunk till he died, at half-past 4, without any convulsions.

#### " SECTIO CADAVERIS.

"The examination took place eight hours after death.—The eye-ball was destroyed. The scalp was rather vascular at its posterior part : the vessels of the dura mater turgid with blood : and in front, chiefly under the pia mater, there was much air, which might probably have been a cadaveric or merely mechanical effect. The brain was everywhere covered by extravasated blood, especially towards the base and left side.

"On raising the brain, the dura mater was observed torn by the anterior clinoid processes of the sphenoid bone, which were driven inwards ; the shattered bones left an aperture through which the finger might be introduced. On examining the brain, it was found lacerated in the left fissura

Sylvii, the extravasated blood being derived from branches of the cerebral artery, which had itself escaped. The umbrella-point had then pierced the intervening parts to the left crus cerebri, which was quite destroyed. Beyond this it went into the right lateral ventricle, and must have penetrated the central parts of the brain for at least two inches. The sphenoidal cells were extensively fractured."

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When I saw this patient enter the ward supported by two men, his whole demeanour led me to suppose that he was intoxicated: but I afterwards learnt that this was by no means the case; and the symptoms are purely ascribable to the violence of the injury he had sustained. The quantity of blood effused at the basis was by no means great; and although the gradual increase of this was probably one great cause of his death, the incoherence and excitement which marked the few hours that he survived the accident, must be ascribed to the irritation and inflammation arising from the extensive laceration of the brain and its membranes.

### CASE CCLXXXVII.

(To follow Case XCVII. p. 214.)

*Apoplexy from Cerebral Congestion, depending upon Obstruction in the Lungs.*

SAMUEL CABEL, a large plethoric brewer's servant, was admitted into Guy's Hospital, under my care, September 22nd, 1830. His countenance and lips were swollen and injected with purple blood; the right hand and leg were paralytic, and his articulation indistinct. The loss of voluntary motion was by no means complete, but sufficient to prevent his standing and deprive him of the power of holding anything in his hand. His pulse 96, and feeble; tongue white: he complained of much oppression at the pit of his stomach; and there was a constant cough, with expectoration and mucous rattle.

Applicentur Cucurbitulæ cruentæ scrobiculo cordis, et detrahatur sanguis ad uncias decem.

Admoveatur Emplastrum Cantharidis inter scapulas.

Habeat Misturam oleos. cum Vini Ipecac. ℥xx. ter die.

Sumat Pil. Scillæ cum Hydrarg. oxyd. ciner. nocte maneq., et Olei Ricini  
℥ss hora somni.

23rd. The chest is relieved, and the expectoration, which is mucus in large clots, comes away more freely. Bowels act imperfectly. Urine turbid. Pulse 120, weak.

Habeat Pilul. Colocynthidis cum Calomelanē gr. xv statim.

Repetantur Medicamenta.

On the 27th a blister was applied to the chest, and a small quantity of the ammoniacum mixture was added to his medicine. He improved daily, and on the 4th of October was reported convalescent, being able to walk about without assistance, his arm having been for several days completely restored.

In this case, the appearance of the countenance, bloated and turgid with blood, accompanied with the impeded respiration, at once bespoke the nature of the cause on which the hemiplegia depended; and the rapid amendment left no doubt that the malady within the head had proceeded no further than to a state of vascular congestion.

### CASE CCLXXXVIII.

(To follow Case CXXV. p. 267.)

*Apoplexy; with an unusually large Clot of Blood beneath the Pia Mater and in the Substance of the Brain, finding its way into the lateral Ventricles: fatal in thirteen Hours.—Aneurism of the middle Cerebral Artery.*

HENRY NEWMAN, aged 45, a married man and not addicted to drinking, was admitted into Guy's Hospital, February 2nd, 1831, in consequence of mercurial cachexia, with some ulcers on the body. He had experienced several slight attacks of paralysis, and his mouth was drawn a little towards one side; his speech was affected. On the 11th he had complained a little of pain in the head, but had been walking about as usual. About 12 o'clock some of his friends had come to see him; and at half past he accompanied them to the front gate of the Hospital. On his return to the ward, he was observed to let something fall from his hand, and he staggered, and would have fallen, but that some fellow-patients saved him. He made an ineffectual attempt to speak; was somewhat convulsed, making a peculiar noise, which the Sister of the ward at first thought to be an expression of feeling at separating from his friends; but he became in a few minutes senseless, and never spoke nor swallowed, and scarcely moved from that time; he sometimes breathed in a stertorous way, but at other times lay in a state like tranquil sleep: his left pupil was much dilated, his right contracted. He was freely bled, and had some croton oil put upon his tongue; but he died at 2 o'clock on the following morning, thirteen hours after the first attack.

### SECTIO CADAVERIS.

The body was warm, and the head only examined.

The scalp was thick, and bled on being cut. The vessels of the dura mater were filled. The serous membrane beneath scarcely moist, particularly on the right side. The convolutions of the brain were much flat-

tended on both hemispheres. Blood, in parts amounting to a layer of coagulum, in the cells of the pia mater, was distributed pretty generally over the left hemisphere, and especially between the convolutions. The corpus callosum was highly arched upwards. The cerebral substance was of a natural consistence and vascularity. The two ventricles were distended with fluid serous blood; the inferior connection of the septum lucidum was lacerated, soft, and ecchymosed. The substance of the left corpus striatum and of all the three lobes of that hemisphere, were occupied by one extensive cavity, containing blood and clot, the medullary substance being broken up, and presenting soft, ragged, and ecchymosed parietes to the contents, which seemed to open to the external pia mater, by some of the convolutions near the fissura Sylvii. The coats of the right cerebral artery seemed healthy, but the cylinder was obstructed by a loose flattened cord of fibrin, firm and of a pinkish hue, and ramifying into one or two of the arterial branches. On blowing into the left trunk, entering the fissura Sylvii, very minute ramifications were instantly inflated; but it was doubtful whether the apoplectic cyst, which was very superficial at the inferior prominence of the middle lobe was also distended with air.

In subsequent dissection, a secondary arterial ramification in the fissure of Sylvius, showed an aneurismal dilatation with very thin coats, filled with dark solid blood, in width rather less than half an inch, and in length rather more. The trunk leading to it was healthy and empty; the trunk leading from it was full of dark blood. The torn vessel was not found, but it appeared probable that this was the part where the external membrane and the internal cavity received the torrent of blood by which they were distended and lacerated. The middle artery on the right side was also considerably diseased.

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In this case, the situation of the aneurism was very nearly the same as in Case CXXV., but it was never completely ascertained, as in that case, what relation the aneurism bore to the vessel which was ruptured. The cerebral mischief was, in this case, much more extensive, and no appearance of amendment or of delay was observed in the progress of the symptoms.



## CASE CCLXXXIX.

(To follow Case CXL. p. 296.)

*Hemiplegia ;—death after three weeks.—Clot in the right Optic Thalamus.*

JAMES CLEMENT, aged 65, was admitted into Guy's Hospital, under the care of Dr. Cholmeley, October 5th, 1830, labouring under an attack of hemiplegia, which had come on six days before. The hemiplegia was complete, and his restoration was at first very slow and imperfect, but the leg improved much more than the arm: he afterwards sunk rapidly, and died on the 22nd.

## SECTIO CADAVERIS.

The left arm was particularly wasted; the left leg also in some degree; the body generally not emaciated. The dura mater seemed crumpled, and lying in little folds from not being fully distended. The arachnoid was opaque in some parts, and thick in all; it separated with the pia mater in one unbroken sheet from the convolutions. The convolutions were then seen pale, contracted, and slightly corrugated; and when one of them was pinched between the fingers, the external layer of the cineritious substance separated easily from that below. The cineritious substance was altogether thin, and its colour faint. The substance of the brain generally full of considerable bloody points, and slightly marbled. On removing the superior part of the brain quite to the level of the lateral ventricles, slight disorganization was perceived at the posterior part of the right corpus striatum, but on being traced, the injury proved to be chiefly placed in the optic thalamus; and on making a perpendicular incision, a clot of blood of a chocolate colour, or still more brown, and of the size of a hazelnut, was found in the substance of the optic thalamus; this was surrounded by a wall of brain of a yellow colour, which had very much lost the character of brain, but did not form a complete cyst. Above the clot, and in the substance of the corpus striatum, a kind of scar of a harder substance was to be traced.

The lateral ventricles were not implicated in the disease, nor were the vessels of the basis of the brain remarkably unhealthy.

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In this case, we have an example of the same dwindled or corrugated condition of the cineritious substance which was remarked in the case of JANE HUNTER (Case CLXXII.); but it does not seem that the imbecility

of this patient was by any means so remarkable. The fact of the leg having improved more rapidly than the arm, is worthy of being noticed in connection with the situation of the clot in the optic thalamus.

### CASE CCXC.

(To follow Case CLVIII. p. 324.)

*Apoplexy, followed by Hemiplegia, chiefly from Congestion, and followed by speedy restoration.*

WILLIAM HEAKES, a feeble man, aged 65, was admitted under my care into Guy's Hospital, January 4th, 1831, the subject of hemiplegia of the right side. It appeared that he had been troubled with occasional headaches for six or eight weeks, and that five days before his admission he had been standing in very severe weather as a porter at a gate, where he became exceedingly cold; and having walked up stairs and gone to the fire, he was seized with giddiness, and was quite unconscious of what went on around him for a space of two or three hours: during this time he was bled at the arm, and he gradually recovered himself, but his left side was completely numb and powerless. At the time of his admission his hemiplegia still existed to such a degree that he was obliged to be carried to his bed; and although he could move his leg, he had no power to stand: his arm was still more powerless than his leg, and in both, the sensation was very incomplete: his face was drawn to the right side, and he had a very severe cough, during the paroxysms of which his urine passed unconsciously.

It was evident that he laboured at the time under great bronchial irritation, to which he said he had been subject for twelve or fourteen years. It was to this that I chiefly turned my attention, giving him mucilaginous medicines with ipecacuanha and small quantities of squills, to which I afterwards added the ammoniacum; and in this way, with attention to his bowels, (which afterwards became too relaxed,) I saw him improve so rapidly, that by the 2nd of February he left the House able to walk, and to use his arm perfectly, and he resumed his former occupation.

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From the rapid improvement experienced in this case, and the great degree of restoration which had taken place at the expiration of a single month, as well as from the cause which induced the attack, there is reason to believe that much of the pressure depended upon vascular turgescence; but there can be little doubt that slight effusion took place at the time of the seizure.

## CASE CCXCI.

(To follow Case CCXC.)

*Hemiplegia, with speedy recovery.*

ELIZABETH GRAHAM, aged 45, a tall, rather spare woman, who had for the last twelve months been subject to frequent pain in the head and giddiness, was admitted under my care into Guy's Hospital, September 22nd, 1830. Sixteen days before her admission she was seized with violent pain in the left temple, and immediately after lost the use of her right side. At the time of her admission, the loss both of power and sensation was to a very great extent, and she was quite unable to help herself even to turn in bed: her face was drawn to the left side so forcibly that her articulation was very indistinct. Bowels confined: pulse 66.

Habeat Pilul. Colocynthis cum Calomel. gr. xv statim; et

Misturam Magnesiae cum Magnesiae Sulphate pro re nata.

27th. She has a severe cough, accompanied with much pain in the head.

Applicentur Hirudines xij temporibus.

Sumat Julep. Mel. Acet. cum Vini Ipecac. ℥ xx sexta quaque hora.

Oct. 1st. The leg is recovering its power: the pain in the head continues.

15th. She can now move the right hand and arm with considerable force. Mouth much less drawn: there is still pain on the top of the head.

Habeat Pil. Colocynth. cum Calom. gr. xv bis in hebdomada.

25th. Is able to walk without the least support.

A few days after this she left the Hospital, and returned to take charge of her family.

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In this case, the hemiplegia was so complete at the time of her admission, (which was sixteen days after the attack,) that there is great reason to believe blood had been effused, although within six weeks of the attack she was able to resume her usual occupations.

## CASE CCXCII.

(To follow Case CXLIII. page 304.)

*Extensive Disease of the Arteries of the Brain, with the remains of several small Apoplectic Cysts.*

JOHN BUCKINGHAM, aged 55, was admitted into Guy's, January 28th, 1831. It appeared that on Christmas-day he had been seized with a shooting pain through his head, which was followed by no absolute paralysis of the limbs, but his speech

became embarrassed, and his recollection was greatly impaired ;—all which had continued up to the present time. He was able to walk ; and although he seemed to answer questions rationally, he was subject to sudden flushings of the countenance and confusion of mind, and was evidently in a state of slight incoherence. Pulse 84 : bowels rather costive. We learnt that two years previously he had suffered a precisely similar attack, from which he had completely recovered. After he had been a few hours in the House, it appeared that his mind wandered continually, he frequently spoke most incoherently ; and as he lay in bed talking, his right hand was almost constantly in tremulous motion ; and if he sat up, his right leg moved as in palsy. His symptoms afterwards assumed more the appearance of delirium tremens : his tongue was clean and moist ; his skin inclined to perspire ; and his bowels sufficiently open. This state of things went on and increased till about the 13th of February, when his pulse was 108, occasionally intermitting, and his tongue brown ; and after a disturbed night, with incoherent talking, he became comatose, being with difficulty excited or induced to give any answer. On the 14th, it was observable that the left eye was closed more than the right, while the right hand was in constant motion ; he had some difficulty in swallowing, and some stertor in breathing. Though with difficulty roused, he attempted to put out his tongue when desired. He died on the 16th.

The remedies employed had been local depletion from the neck and behind the ears, which was employed four times, but with no decided relief. Blisters were applied and kept open upon the neck, and the ointment of the tartrate of antimony was at one time applied to the scalp. Cold was also used to the head, and the combination of calomel with extract of poppies, or with camphor and hyoscyamus, was persisted in for some time ; gentle support and even the cautious use of stimulants were also had recourse to,—but nothing seemed to do any good ; and the depletion rather increased his symptoms.

#### SECTIO CADAVERIS.

When the dura mater was removed, the arachnoid was seen decidedly opaque or of a milky colour, and a small quantity of serum was effused beneath it. It separated with the pia mater very easily from the convolutions, and the pia mater was somewhat vascular ; the two membranes together were very thick and firm : but the chief appearance which struck the eye was the condition of the moderate-sized branches of arteries ; for these, as they rose from beneath the convolutions, were seen spotted in various parts with yellow patches of osseous and cartilaginous consistence ; and gently drawing the two hemispheres asunder, all the large branches running along the corpus callosum were most strongly marked with the same patches of disease.

Slicing off the medullary substance, when come to a level with the top of

the ventricles in the left hemisphere, one spot about the size of a hazel-nut was soft, and appeared to be the result of some former apoplectic lesion : but there was no distinct clot or cavity or circumscribed disease ; and a small portion of the brain close to the membrane of the posterior cornu of the ventricle was rather soft and lacerable. On the right side, just above the corpus striatum, was a small cavity not much larger than a pea, looking like one of the vesicles in a Parmesan cheese, containing a small drop of colourless fluid, and lined by a very thin transparent membrane, which we concluded to be the result of a former apoplectic attack ; another, of a somewhat similar character, but larger, and less distinctly a cavity, was found a little lower down ; and a third occupied the external and anterior part of the corpus striatum, this was more extensive, with a distinct cyst, and filled with an ochre-brown semifluid substance, evidently the remnant of a clot of blood. These were the only morbid appearances which we could discover in the substance of the brain ; but on examining the basis, the arteries were all in a state of very advanced disease, and particularly the carotids, which formed complete bony tubes, and seemed to have flattened the optic nerves considerably.

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In this case, there is reason to believe that the extensive and doubtless long-continued disease of the vessels occasioned frequent derangement of circulation, and consequent congestion in the brain ; and the mischief which was observable in the right hemisphere, left no doubt that he had before suffered two or three slight attacks, of a character very similar to that which preceded his death ; while we trace in the left hemisphere mischief which may well be supposed to have taken place six or seven weeks previously, when the present attack was experienced. Though a great part of the symptoms probably arose from the derangement of the circulation rather than from the organic lesion of the substance of the brain, which was of small extent, and so distributed in both hemispheres as to throw little light on the connection of the portion of the brain injured and the character of the paralysis,—yet here we found both articulation and deglutition particularly disturbed, in a case where the corpora striata were chiefly diseased. (See observations in page 330.)

## CASE CCXCIII.

(To follow Case CLXVII. page 361.)

*Hemiplegia, chiefly affecting one Arm, from Scrofulous Disease in the opposite Optic Thalamus.*

A YOUNG man, of very amiable disposition and ardent desire for knowledge, tall and spare-made, with thin skin, and decidedly delicate appearance, became much out of health in the spring of 1830. At that time I was consulted, and found many symptoms of irritability; as palpitation of the heart, frequent flushing of the face, and quick pulse; bowels irregular, and much inclined to constipation: there was a little hesitation of the speech, which was stated to be natural to him, but which had been aggravated, giving altogether an unnatural embarrassment to his manner, which, in connection with his susceptible mind, and in the absence of any evidence of thoracic or abdominal disease, excited fear that the head might be the source of his present symptoms. Strict attention to the state of his bowels, and a retirement into the country for some weeks, restored him to his usual state of health, and he resumed his studies and occupation in the autumn.

In the month of March 1831, without any previous marked indisposition, he had an attack of hemiplegia in the right side, affecting both his leg and arm. I did not see him during this illness; but he was attended by two physicians of great eminence and extensive practice, and I frequently heard reports of his progress. He complained of no pain in the head; had no drowsiness, no strabismus, no imperfect vision. In a few days his leg recovered its power in a great degree, and he was able to draw it up in bed as he did the other; *his arm, however, was never in the slightest degree restored.* His symptoms were those of increasing debility, with occasional cough, without expectation; quick weak pulse; from time to time pains about the chest; tongue at one time loaded with brown fur at the back part, at other times very clean. He was ill about seven weeks, during which he scarcely left his bed, and becoming gradually weaker and more emaciated, died on the 25th of April.

## SECTIO CADAVERIS.

The dura mater rather turgid with blood, having many bleeding points where the vessels were divided. Some congestion in the vessels of the pia mater, particularly in the large veins at the posterior part, where one or two, before they entered the longitudinal sinus, had acquired unusual size. The structure of the pia mater was rather loaded with serum; and there were a few very inconsiderable spots of opacity upon the arachnoid. The cineritious substance separated rather easily into layers. The appearance of the centrum ovale on both sides was that of great and habitual conges-



tion; for the orifices of the vessels were large and numerous, and the whole had acquired a dusky mottled aspect. The cavities of the ventricles were unusually small, and contained very little fluid; the choroid plexus by no means turgid with blood. At this stage of the dissection, it was casually observed that the left optic thalamus seemed to encroach more upon the depth of the ventricle than the right; but we proceeded to examine the basis, where on the most careful and anxious investigation no morbid appearance could be discovered. Returning then to the ventricles, we carefully examined the corpora striata and optic thalami: the left optic thalamus alone remained; a longitudinal incision was made into it, and immediately disclosed, as precisely as possible in the *centre of the thalamus*, a *suppurating scrofulous tubercle*. This was altogether about the size of a large French-bean, and consisted of a solid firm cyst, of the thickness of two cards, very vascular, and connected firmly with the brain, so that it would not separate from it: this connection was apparently kept up and strengthened by numerous vessels; the cavity was filled with white scrofulous matter, very soft, and in fact as fluid as ordinary pus. When this was removed by the handle of the scalpel, the internal surface of the cyst was lined by a kind of ragged flocculent matter, like that which is often found in the corresponding part of the phthisical tubercle.

In the thorax we found slight evidence of recent pleuritic inflammation on both sides; and the whole of both the superior lobes of the lungs was one continuous mass of small white tubercles, not any of them larger than a small sweet-pea: they were scarcely softened, and none of them contained fluid pus. On pressing these lobes they communicated a peculiar sensation; for although so hard as to preserve their form under pressure, they yielded a slight crepitus throughout, and the hard tubercles felt like a number of shot within. There was one small mass of the size of a bean, looking like the result of an old tubercular infiltration which had long become completely quiescent. The lower lobe on the right side had within it a number of very minute gray particles, regularly distributed, which I believe to have been the incipient stage of the disease more advanced through the superior lobes.

The heart was quite healthy, but rather weak in its muscular structure. Liver healthy. Spleen rather firm and large. Mesenteric glands very little larger than natural.

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In this case we find many points of great interest. In the first place, the nature of the former illness seems fully elucidated by the dissection : and while another is added to the numerous facts on record in proof of the insidious progress of chronic disease within the brain, we perceive that even in the earliest stages of such attacks circumstances occur capable of awaking suspicions, which may be acted upon so as to retard the progress of disease without any fear of injuring the constitution ; and there is no doubt that the careful regulation of the bowels, and the gentle tonic plan of treatment adopted, together with temporary withdrawal from causes of excitement, interrupted materially the progress of the disease within the brain in this instance.

What might have been the cause of the sudden change which occurred in the symptoms when hemiplegia was induced, we are not in our present state of knowledge able to point out : but such sudden attacks are quite in accordance with what often occurs in cases of tumour, abscess, or partial change of structure in the brain, the disease arriving at a certain point, and then suddenly producing paralysis. One very interesting circumstance in this dissection was the circumscribed character of the mischief, and the consequent opportunity it afforded of drawing some inference with regard to the correspondence between the portion of the brain injured and the part of the body paralysed ; and in this respect the interest is increased by the apparent confirmation it affords to the observations of Serres, Foville, and Pinel-Grand-Champ, all of whom assert, that *injuries to the optic thalami and the posterior radiations from the corpora striata affect the upper extremity of the opposite side ; whereas the injuries of the corpora striata and its anterior radiations affect the lower extremities* :—in this instance, although, as is almost always the case, the other extremity on the same side suffered from the shock, yet it soon recovered itself almost completely, and the arm alone remained permanently paralysed. (See observations, page 330.)

The dissection of this case likewise points out the great necessity for care in conducting such investigations with regard to the brain, and the facility with which decided disease in this organ may be overlooked ; from which, probably, the occurrence of symptoms without adequate disease has often been asserted, and of which the following case will afford an example equally illustrative.

The condition of the lungs was one which is by no means common ; and

extensive as the disease was, involving the whole of the upper lobes, there is no reason to suppose that it was of any long continuance. It was quite evident that the morbid action had been almost simultaneously excited throughout the whole of both superior lobes, and therefore it would require no longer time to disorganize the whole, than to produce the same effect on ever so small a portion. It would appear that the same action was prepared to take place as generally over the lower lobe of the left side, but its progress was much less advanced.

### CASE CCXCIV.

(To follow Case CLXVI. page 337.)

*Torpor and Defective Vision, without Drowsiness, Spasm, or distinct Paralysis of the Limbs, from a Tumour in the Corpora Quadrigemina.*

GEORGE NEALE, aged 24, was admitted under my care into Guy's Hospital, March 9, 1831. He was in a state of such general imbecility of mind and body, that even with the assistance of his mother it was a difficult matter to get a history of his complaint upon which any reliance could be placed. It appeared, however, that all his life he had been an invalid, but that for the last seven months his present symptoms had been coming on, since which, and particularly for the last two months, he had suffered from pain in the forehead and temples, and dizziness with indistinctness of vision, which had been latterly increasing rapidly. At the time of his admission the utmost he could do was to distinguish the finger when held up, and he could scarcely say with certainty whether one or more were shown at the same time. He lay with his eyes wide open, and pupils contracted, more particularly the left, in which the vision was still more imperfect than in the right. He seemed in a state of fatuity, requiring to be asked many times before he would put out his tongue; he was quite unable to feed himself or give notice of the calls of nature; he was able to move all his limbs, but seemed never to move them willingly; and it was discovered by pinching different parts that the sensation of the right hand was decidedly defective, though this was not the case with the left. He complained occasionally of pain in his forehead when asked; but even this complaint he ceased to make in a few days, and fell into the most singular state of perfect tranquillity, so that he would lie upon his back with his eyes wide open, without moving a hand or foot for hours together, till disturbed by the nurse obliging him to take food or medicine. There was not the least spasmodic action of the limbs, nor the slightest drawing of the features. The tongue was moist and rather furred towards the base; but his countenance, except as regarded its vacancy, had a pretty healthy appearance. I conceived, from the first day I saw him, that some tumour was forming within his brain; and from the absence of any spas-

modic affection of the limbs, or irritation, I was led to suppose that no material disorganization had taken place in the cineritious substance. No particular change was observed in his symptoms; but he gradually sunk, and died on the 5th of April.

#### SECTIO CADAVERIS.

April 6th, 1831.—The nates were covered with a thick discoloured cuticle from pressure, but there was no slough. The body by no means greatly emaciated.

On raising the calvaria, the inner side of the skull was marked with unusual inequalities, and the whole bone looked purple; the diploe was peculiarly red. The dura mater was vascular, and had many small drops of blood upon its surface. When this membrane had been removed, the arachnoid was seen rather dry, but decidedly vascular; the convolutions, particularly on the right side, seemed flattened. The membranes were very thin, and separated with some difficulty from the convolutions; there was no fluid beneath them, and when the convolutions came into view they were of a gray colour, and some pinkish marks were observed upon their summits: drawing the hemispheres asunder, their opposed surfaces were flattened, and the corpus callosum was arched, evidently from fluid in the lateral ventricles. The horizontal section of the hemispheres showed the brain, natural in structure, but the orifices of the divided vessels were very distinctly marked. The ventricles were greatly distended with perfectly pellucid serum, of which the greater portion, measuring three ounces, was collected. It contained very little albumen, not becoming the least opake by heat, but slightly turbid by the addition of oxymuriate of mercury. The ventricles were permanently distended in all parts, and their parietes so firm, by the comparatively hard condition of the lining membrane, that they retained their form when the fluid was removed. The septum lucidum was thick and opake, and the foramen of Monro remained open, large enough to admit a swan's quill. The membrane on the sides of the foramen of Monro was thickened and scabrous, so as to be quite rough to the touch. The commissura mollis was much thickened and hard, and evidently diseased, looking rough, like the part of the membrane I have just mentioned. It was with great difficulty we could recognize the pineal gland; and on examining further, it was found that most important disease had taken place in the corpora quadrigemina, the anterior tubercle of which on the left side was greatly increased in size and completely altered

in its structure, so that the perpendicular section presented a purple-red oval surface, of the size of a French plum, in the centre of which was a little yellow matter, like a small deposit of fibrin.

There was a good deal of fluid in the basis, which showed itself as soon as the tentorium was cut through.

In this case, the seat of disease was peculiar, and, as far as the tumour was concerned, very circumscribed: but the extensive effusion of fluid in the ventricles rendered it difficult to localize the disease in such a manner as to point out precisely the effect which an injury to that portion of the corpora quadrigemina would produce upon the distant parts of the body. There was certainly no disfiguration of the countenance, and no decided paralysis of the power of motion in the limbs; there was no convulsion, nor did there appear to be that want of action in the surface which is so often attended with great loss of animal heat, and with a tendency to slough from pressure and irritation. On the other hand, there was general imbecility of mind and imperfect vision on the same side as the chief disease, and great inaptitude to any motion of the body, with some partial diminution of sensation in the opposite arm: but as most of these symptoms might have been connected with the effusion, we can form no decided conclusions upon this case alone.

### CASE CCXCV.

(To follow Case CLXX. page 368.)

*Effusion of Serum under the Arachnoid, and Softening of the Cineritious Substance, with Paralysis, and much Spasmodic Affection.*

MARIA LAMB, aged 33, (who it seems had suffered much poverty and privation,) was admitted into Guy's Hospital, February 20th, 1830. At that time she was paralytic in all her extremities, but was able to be got up and dressed, and was daily placed near the window in a chair. She continued in this state till February 1831, being still able to stand erect with assistance, and to talk quite intelligibly, though with much effort. During the last four months of her life she became evidently worse, was quite unable to feed herself, and lay constantly in bed, and for the last two months the spasmodic catches of her extremities, which had always been remarkable, became more and more frequent, and for the last six weeks her legs were bent up in such a way that her knees touched her body.

I first observed her in the month of March; she was pallid and emaciated, lay al-

ways in bed with her neck rather bent, and her knees drawn up towards her abdomen; her arms were generally half bent, and her hands likewise contracted, but very frequently her fingers were moved in quick spasmodic motion, still more firmly contracted than before, and she appeared to be unconsciously picking her pillow, having her eyes directed to the ceiling, while her right arm was carried round towards her left shoulder or the contrary; and when this spasmodic action was most upon her, her head likewise moved with a waving motion; her pupils were small, but she could see; she occasionally spoke, calling to the nurse, but was in a state of the greatest mental as well as bodily imbecility; she knew so far what was said to her as to attempt to put out her tongue after being frequently asked, and after having her chin touched several times. She swallowed pretty well, but was obliged to be fed with spoon-meat; and it was somewhat difficult occasionally to get the food into her mouth. The paroxysms of convulsive agitation and unconsciousness increased very much latterly, and she died in the latter end of March.

#### SECTIO CADAVERIS.

The body emaciated; the knees bent up nearly to the body, so stiffly that they could scarcely be moved; the hands contracted, and much emaciated. A slough was formed upon the nates. When the calvaria was raised, the dura mater was very free from vascularity; and when this membrane was removed, a complete covering of serous fluid was seen beneath the arachnoid. The arachnoid was quite transparent, except along some of the large veins, where it had spots of opaque white running in the course of the veins. Although there was so much fluid effused, the membranes were brought with great difficulty from the convolutions, and a thin layer of the cineritious substance peeled off with the membranes, particularly from the tops of the convolutions, and the cineritious substance was rather soft. The fibrous texture of the brain was very demonstrable, there were a good many bloody points on the cut surface, and the cineritious portion was thin and faintly marked. The lateral ventricles contained no very unusual quantity of fluid; but at the basis a good deal had collected, and as the brain was carefully raised, the arachnoid covering the medulla oblongata was seen to be filled with serous effusion. The same unusual adhesion of the arachnoid and pia mater was found at the basis as in other parts.

The theca of the spinal cord was quite natural, but contained a considerable quantity of fluid. The spine was healthy throughout, except that in its cervical portion it had acquired a peculiarly flattened form, apparently



derived from an habitual constrained curvature of the neck forwards, which had been observed during life. —

In this case, the symptoms denoting a fixed source of great irritation, accompanied with convulsive agitation and mental imbecility, led early to the conclusion, that the membranes and the surface of the brain were chiefly affected, which opinion was completely confirmed by the appearances after death.

### CASE CCXCVI.

(To follow Case CXCH. page 413.)

*Partial Hemiplegia, chiefly of Sensation, in consequence of a severe Injury to the Head.*

JOHN COKELEY, aged 40, was admitted into Guy's Hospital, under my care, March 30th, 1831. It appeared that on the 19th of last October, having been previously in perfect health, he was run over by a gig, and was taken up senseless, with a laceration and deep cut upon the left side of his forehead. He recovered his consciousness in a short time, and was taken to St. Bartholomew's Hospital, where he remained three weeks. He is not aware that the bone was injured, and he was neither bled, cupped, nor blistered. He has never since the accident been perfectly free from numbness of the arms and legs, particularly on the right side; and for the last two months he has frequently felt giddy, and has been subject to cramp in the calf of the right leg, chiefly attacking him at night. He has taken a good deal of medicine, and his gums are at the present time sore with mercury. The numbness of the right arm and leg, but particularly the leg, is very decided.

Fiat Setaceum Nuchæ.

Habeat Pilul. Aloes cum Myrrh. gr. xv. omni nocte.

April 4th. He was directed to have a blister applied to the scar on the left temple, which was extensive, and to have it repeated as soon as it began to heal. By pursuing this treatment many of his symptoms diminished gradually, but the numbness continued in some degree. —

In this case, the paralysis of the right side corresponds well with the situation of the injury on the opposite side; and it affords a fresh instance of those secondary injurious effects which so often result from severe mischief in the head.

### CASE CCXCVII.

(To follow Case CCI. page 423.)

*Paraplegia, with dry Gangrene of the Extremities, from extensive Disease of the Spinal Cord.*

— BELCHER, aged 39, was admitted into Guy's Hospital on the 2nd of February 1831, under the care of Dr. Cholmeley. She was a Spanish woman, wife of a sol-

dier, and mother of six children. She had been ill for a period of five years, but for the last three years had almost completely lost the use of her lower extremities. At the time she was brought to the Hospital she was obliged to be carried up-stairs, and had several sores upon her nates from lying; her feet were drawn up to her nates; she was much emaciated. She complained of nothing, except when moved, on which occasion she always expressed much uneasiness and pain. She was perfectly sensible the whole time she was in the Hospital. About ten days before her death, the left foot became dark, and in a state of dry gangrene; after which the fingers were also purple and gangrenous, and the right foot followed. She gradually sunk, and died on the 26th of February.

#### SECTIO CADAVERIS.

The brain was apparently healthy.

The dura mater covering the spine was in several parts firmly adherent to the canal, and in some parts thickened: some clear fluid escaped on opening it. The nerves external to the dura mater were not unsound. About one inch and a half of the length of the tube, near the middle of the dorsal region, was dilated perceptibly, but not suddenly; it was also thickened and opaque in one or two spots, but generally at this part the entire membrane had a semitransparent grayish hue. This part of the dura mater sheath was adherent throughout to the spinal cord, as were partially and pretty extensively the parts above and below. A perpendicular section was made through the whole length of the cord posteriorly: this divided, near the inferior part of the dilatation above mentioned, a thickened opaque white patch of the dura mater, which cut like a soft layer of cartilage; but its external surface was vascular, as was that of the greater part of the membrane; its extent about equalled the size of a sixpence. The cause of this white appearance was very superficial, in the form of a thin layer of soft cream-coloured tendon, at the margins fading into the surrounding structure, and its inner surface intimately united with what seemed the original fibrous sheath, thick, and loose textured, light-purplish and semi-opaque.

Adhering to the thickened membrane, and immediately beneath, was an irregular tubercle, rather less in upward and lateral extent than a sixpence, varying in thickness from one to three lines, with a tuberoso face anteriorly and posteriorly, and consisting, as a section showed, of a pus-coloured and pretty firm scrofulous deposit without evidence of vessels, and inclosed in a brain-coloured layer, of the firmness of fine cellular web, adapted to its irregularities. The remaining contents of this dilated

portion of tube appeared to be a watery translucent jelly, of a light reddish purple colour, having everywhere the hue of vascularity, with many distinct vessels. It retained no form after division. There were slight half-dissolved remains of the anterior column, but none of the posterior. On the inner surface of the sheath at the upper part of the dilatation, anteriorly and to the right, was an ovoid body a little larger than a pea, of a deep red colour from vascularity, almost like blood deposited in fine cells; the colour of which was gradually lost in that of the surrounding gelatinous matter. The scrofulous tubercle was inclosed superiorly, inferiorly, and posteriorly, by the described fluid mass, and retained a solid form, two or three lines deep, gradually softening outwards. The termination of the soft jelly-like matter, both above and below, was gradual; the substance of the medulla seemed to be dissolved into it in progressive degrees.

Wherever the membranes were agglutinated and adherent to the spinal marrow,—which they were to a considerable extent of their middle length,—the union between the latter and the membranes consisted of a thin and pretty firm transparent jelly, which seemed to be the original external layer of the medulla, without colouring of vessels. The centre of the cord formed a canal, tapering from the mainly degenerated portion upwards and downwards, filled with a watery jelly, which derived a shade of opacity from minute flakes of brainy matter, but it had no evidence of vessels. All the columns appeared involved, and were softened, particularly where they formed the parietes of this canal as high as about the sixth cervical vertebra, near to which a transverse section showed a pretty healthy substance. The similar dissolution below the scrofulous tubercle extended about two inches, but presented a slight hue of vascularity.

The fusiform part of the cord, and a small portion above, was solid and healthy, and free in its coverings, as was also the upper part of the cord.

The lungs, which had slight adhesions to the ribs, were collapsed; and on inflating them, they appeared universally emphysematous, and in some parts air was diffused between the lobules.

The heart had much fat, compared with the general emaciation, but no other affection. One of the valves of the aorta had a little osseous deposit. The abdominal viscera were healthy.

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I was not able to remain long enough to see the spine opened in this

case; but I am indebted for the above minute description of the appearances to Mr. King, who conducted the examination. Dr. Cholmeley, under whose care the patient was, always considered the disease to depend on some alteration in the spine, and its degeneration was found to be very extensive; it may be considered a softening of the substance consequent upon scrofulous deposit.

### CASE CCXCVIII.

(See page 423.)

#### *Partial Paralysis of the Face.*

STEPHEN STREET, aged about 30, accustomed to carry large weights upon his head and shoulders, was admitted into Guy's Hospital, under the care of Dr. Cholmeley, February 23rd, 1831, affected with paralysis of the left side of the face. It appeared that about a month before Christmas he found himself frequently giddy and sick, so that he nauseated his food, and was scarcely able to eat anything, though he did not absolutely vomit. On Christmas-eve he became the subject of most severe pain in his left ear, descending down his neck behind the angle of the jaw; nor could he obtain any ease but by the external application of heat, so that he constantly held his face close to the fire; and to this, in his own mind, he ascribed the circumstance of his face becoming at that time drawn completely to the right side. This state of pain continued for twelve days in succession; after which he remained so giddy that he was obliged to be taken in a coach to St. Thomas's Hospital, where he became a patient, and was cupped, blistered, had a powder every other night, and a poultice constantly applied to his ear.—He left the Hospital much relieved; but after returning to his work for four days, the giddiness again came on, and he applied to Guy's Hospital; where he was admitted February 23rd, with giddiness and complete paralysis of the left side of the face. He afterwards became the subject of severe erysipelas of the head; and being accidentally requested to prescribe for him one day when he was very ill, I was first led to inquire into his case. His recovery from the erysipelas was rapid and satisfactory, but his paralysis remained unaltered. His face was drawn to the right, and the whole of the left side of the face was perfectly fixed and immoveable, so that when he elevated the right brow or moved the right cheek, the left was quite still: he was also unable to shut the left eyelid; and when he made the attempt, the eyeball was turned upwards and the lid remained open: his vision had not suffered, and the right eye seemed to have lost none of its power of motion, for it followed the left eye most perfectly in all its movements: he had no deafness, nor any pain or paralysis in any part of his extremities.

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I have introduced this case, not on account of its peculiarity, but as an example of one of the most frequent forms of partial paralysis referred to in page 423. In this, the portio dura is almost the only nerve the function of which is interrupted: the intense pain within the ear by which the paralysis was preceded, induced a belief that some inflammatory action existed in the nerve or its coverings, which was subdued by judicious treatment; but the mischief to the part may probably now never be removed. The occurrence of so much vertigo and sickness would perhaps lead to a fear lest some important change of structure were going on within the brain or its membranes; and it is by no means impossible that such may be the case. I am, however, inclined to the opinion, that the disease is confined to the parts about the ear, because there is not the slightest paralysis of any other part of the body: and by referring to Case LXI. page 113, it will at once be perceived to what a degree vertigo may exist from injury in the ear, without being attended with organic change even in the membranes.

### CASE CCXCIX.

(Continuation of Case CLXXXVIII. page 400.)

*Paraplegia, chiefly affecting the Upper Extremities, and possibly depending on the Influence of Lead.—Great Congestion in the Vessels of the Brain.*

VERY little alteration took place in this patient; but his hands became more and more useless, and his articulation so indistinct that it was very difficult to understand any thing he said; and the process of eating and swallowing food was so slow, as to be truly painful to those who saw him. He remained for the last month or two of his life almost constantly in bed, which he was the more inclined to do, because he found that in this way he avoided most effectually the convulsive attacks which bore so strong a resemblance to hysteria. He sunk gradually, and died on the 1st of April.

### SECTIO CADAVERIS.

April 2, 1831.—The body was considerably emaciated, and the hands retained their contracted form. The calvaria was easily detached from the dura mater, but the vessels of that membrane were turgid with dark blood in a remarkable degree, and each ruptured orifice gave out a drop of blood. The longitudinal sinus contained fluid blood; and when the dura mater was raised, all the large veins were seen running over the con-

volutions, distended with dark blood; the outside of the arachnoid rather dry. The whole surface of the brain was covered with vessels; and in a few places small white patches were seen on the arachnoid, which, however, was in general perfectly transparent, and very slightly raised between the convolutions by clear serous effusion. The arachnoid and pia mater separated pretty easily from the convolutions, and the pia mater contained some serous fluid. The colour of the convolutions was decidedly more gray than natural, and their surface was marked with numerous punctures where the vessels had entered from the pia mater. When the brain was divided by an horizontal section, the cineritious substance was seen of a very dark colour, and the whole medullary substance was gray, and marked with numerous bloody spots. In the ventricles there was no unusual quantity of fluid, but the large vein of the choroid plexus was tortuous in its course, and exceedingly distended with dark blood; and in each posterior cornu a small tumour of the size of a large lupine-seed, of a yellow colour and soft to the touch, but very tough in its consistence, hung in the choroid plexus. The cineritious substance of the corpora striata was of a dark-gray colour, corresponding to that of the convolutions.

The basis of the brain presented the same appearance of excessive venous vascularity as the upper parts had done, and there was some serous fluid collected about the origin of the nerves; the membranes were nearly natural. The lateral sinuses were much distended with blood. The spine was most carefully examined, and nothing was found either in its membranes or in its substance,—every part of which was cut open,—which could be considered as a deviation from nature; if there were any, it was only some very slight fine filamentous adhesion between the theca and the arachnoid.

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In this case, the general and excessive congestion afforded undoubtedly the most marked evidence of disease, and might of itself be sufficient to account for the greater part of the symptoms; but the change which had taken place in the choroid plexus by the deposit of opaque matter in that part which extends into the posterior cornu, might have had some important influence (see page 334.), and the collection of serum at the base of the brain no doubt increased the mischief, and probably was connected with the peculiar paroxysms which this patient experienced. It is not



impossible that in this and many analogous cases, the first step towards disease is torpor induced in the actions of the brain by the poison of the lead; and that to this, congestion quickly follows.

### CASE CCC.

(To be introduced after Case CXCI. page 411.)

#### *Concussion, with Laceration of the Brain;—fatal in sixty-four Hours.*

— — —, aged 76, was brought to Guy's Hospital about ten o'clock in the morning, April 20th, in a state of perfect insensibility, having just been knocked down by the shaft of a butcher's cart, but whether the wheel went over her head was not known. There was a wound in the scalp opposite to the back part of the right parietal bone, and a bruise on the left temple. I saw her within an hour of her being brought to the Hospital; she lay in a perfectly tranquil state with her eyes closed. Respiration pretty natural, but the pulse exceedingly feeble, and somewhat irregular; extremities cold; face pale; pupils sluggish, the left rather dilated, the right slightly contracted and abducted. Mustard poultices were applied to her feet, and she was placed in a warm bed. I saw her again about 5 o'clock, but there was not the slightest return of consciousness. The skin was decidedly warmer, the face flushed, and the pulse had acquired both frequency and power: the right pupil was more dilated. She lay on her back as before, with her head turned to the right side; the right pupil rather more dilated; and she had occasionally a slight spasmodic action of the right hand. As the pulse rose still more in the evening, and there was evident re-action, a small quantity of blood was taken from the arm; but when six ounces had been drawn, the pulse seemed so much affected that it was thought right to desist.

21st. There has not been the slightest return of sensibility; she lies in exactly the same position as yesterday: when the hands are raised by the attendants, they fall quite powerless, and the left hand appears more lifeless than the right; the elbow and fingers quite flexible. The fingers of the right hand have now and then been observed to move, and they feel a little more rigid than those of the left, but there has been no return of the slight spasm noticed yesterday. Pulse much stronger than yesterday morning, and rather accelerated: it has at no time been labouring, and never full. Respirations 24, with a little of that peculiar blowing motion of the cheeks and lips, which has been said to resemble smoking a pipe.

22nd. There has been no sign of consciousness, nor any convulsion: her looks are more sunk, and her pulse is more feeble.

23rd. At 2 o'clock in the morning she died, having thus survived the accident about sixty-four hours.

Mr. Bransby Cooper, under whose care this case was admitted, considered the symptoms as indicating concussion rather than pressure; and, on examining the wound when she was first admitted, found that there was neither fracture nor depression.

## SECTIO CADAVERIS.

The examination took place about twelve hours after death. There was a cut on the right parietal bone, and a bruise on the left temple. On removing the calvaria, the dura mater appeared a little full, and on dividing it with a pair of scissors, a good deal of serum escaped on the right side, which appeared to be lodged between the arachnoid lining the dura mater and that covering the brain; though, as some still remained beneath the arachnoid, it became somewhat doubtful whether the whole might not have escaped from the same situation. On the left side there was more serum, sanguineous in colour, and more obviously lodged between the two arachnoids. No blood was extravasated externally to the arachnoid, but a small quantity was very thinly effused over the middle and posterior part of the right hemisphere, and over the posterior lobe of the left as well as over the whole of the cerebellum: this blood was entirely lodged in the meshes of the arachnoid and pia mater, so that it showed itself chiefly between the convolutions and scarcely tinged their summits, and when the pia mater was drawn off, the blood came out in small clots, held together by the cellular structure of the membrane.—The summits of those convolutions corresponding to the part where the scalp had been wounded, were lacerated, soft, and tinged with blood. This was confined almost entirely to the cineritious substance of that part. On dividing the corpus callosum perpendicularly, many small specks of extravasated blood, like petechiæ, were found in the substance of its anterior part; and a clot of blood of the size of a pea, around which the brain was soft and lacerated, was found in the middle of the cornu Ammonis of one side. The testis on the right side was also lacerated; and in a portion of medullary matter running back from this by the side of the calamus scriptorius, a small clot of blood had been effused. In one lobe of the cerebellum a dark clot, of the size also of a pea, was found just outside the corpus rhomboideum.

This, then, was a well-marked case of most severe concussion, with a little effusion of blood; all the symptoms of concussion were present, the sudden obliteration of consciousness without stertor, and the feeble fluttering circulation gradually returning and becoming more excited than natural. Besides these symptoms, there was some convulsion of the right side, and some apparent loss of power on the left, which might have been owing to the compression from gradual effusion both of blood and serum; and this

seems the more probable, from the situation in which the blood was effused : for Mr. Brodie says, " It has appeared to me, that more urgent symptoms are produced by a given quantity of blood, when it is effused into the cells between the tunica arachnoides and pia mater, than when it is collected in one mass so as to produce a less general pressure."—The convulsion in these cases Mr. Brodie ascribes to the laceration of the convolutions, which is, I have no doubt, the fact ; but in the present instance, the chief laceration of the convolutions was on the side affected with slight convulsion : as, however, in other parts the fibres of the brain had been lacerated, it is impossible to say on which portion of the injury the convulsions, which were very slight, depended. The appearances on dissection corresponded precisely with those which I have described in Cases CLXXXIX., CXC., and CXCI., and those which are depicted in Plate XX., showing laceration of the convolutions and of the fibres of the brain in various parts as the effect of severe concussion.

### CASE CCCI.

(To follow Case CCC.)

*Concussion with Laceration of the Cineritious Substance, and yellow Disorganization of the Medullary Matter; the external layer of the Cineritious Substance separable.*

WILLIAM BROOKER, aged 41, was a man much addicted to drinking, by which he had greatly injured his prospects in life. There was a certain unsteadiness and imbecility in his manner which struck those who saw him, but did not prevent his discharging the menial offices of the situation to which he was reduced. On the evening of May 18th, 1831, he was known to be somewhat intoxicated, and about two hours after the last time he had been seen, was found lying at the bottom of a pretty long flight of stone steps, in a state of insensibility, with a bleeding wound of the scalp, on the back part of the head, towards the right side. As it was supposed he was intoxicated, he was put to bed ; but in the morning, being still in a state of insensibility, he was removed to one of the Wards of Guy's Hospital.

I first saw this man on the 20th, at which time there had been no return of intelligence ; there was neither paralysis nor decided convulsion, though there was a restless moving from side to side and rising in the bed, which seemed to indicate cerebral irritation : there was nothing like stertor ; pulse 70 ; pupils contracted.—On the following day his face became decidedly convulsed, the motion beginning very slightly in the right side of the lower lip, and gradually increasing in force and extent and in a few seconds the whole right side of the face was violently agitated, the eye was drawn up, and the right corner of the mouth was drawn towards the ear. Gene-

rally the limbs remained perfectly tranquil during this convulsion, but occasionally partook of the agitation, which was nearly confined to the right side. The fit lasted less than a minute, and as soon as it was passed he returned to a state of complete composure. On the 22nd, there was decidedly some improvement in the signs of intelligence, though the convulsions were very frequent, returning three or four times every hour. On the 23rd, the same limited degree of intelligence remained, so that after being much urged he made an effort to put out his tongue, but could do little more than open his mouth, and any disturbance of this kind seemed to excite the convulsion, when it went through nearly the same progress as at first, subsiding in about a minute into perfect tranquillity. The pulse was more permanently accelerated, though it varied a little, according to his state; at this time it was about 80, with some sharpness. 24th. The pulse increased to 96; pupils contracted; convulsions of the face, occasionally extending to the limbs of the right side, very frequent. He seemed sensible between the convulsions, but had never spoken.

25th. His convulsions became more frequent and were almost constant; and it was observed that the right pupil was more contracted than the left, and that its power of vision was lost; for when the other was closed, and any thing was held before it, he was evidently unconscious of its presence. He became completely exhausted, and died about the middle of the day.

#### SECTIO CADAVERIS.

The wound on the scalp was on the back part of the head, to the right side, but it did not penetrate the tendon of the muscle; slight ecchymosis was seen over the posterior part of the skull.

Raising the calvaria, it was evident, from the dusky brown colour of the dura mater, that blood was effused beneath it, on the left side; and when the membrane was raised, a quantity, not exceeding two ounces, of grumous blood was found distributed over almost the whole external face of the hemisphere. Very extensive laceration of the summits of the convolutions had taken place the whole length of the hemisphere above the ear, and the coagulated blood was mingled with the lacerated brain, to which it adhered firmly. A small quantity of blood was also extravasated beneath the arachnoid and lodged in the meshes of the pia mater, but did not in many places sink between the convolutions. The laceration extended to the most anterior portion of the anterior lobe, where it was deeper in the substance of the brain than in any other part; and not only was the cineritious portion broken down and stained throughout with blood, but the medullary matter, to a depth somewhat lower than the bottom of the convolutions, was of a clear lemon colour, with several small points of ecchy-

mosis interspersed. This change of colour, however, was not accompanied by any decided change in the consistence of the part, except immediately around the laceration.

On the right side there was, towards the back part of the hemisphere, a small quantity of blood extravasated on the surface; and at the posterior part of the anterior lobe a very considerable laceration, sinking deeply, and having nearly a teaspoonful of blood retained within it by the arachnoid.

Over the whole brain the external layer of the cineritious substance separated with most remarkable facility, coming away freely when the convolution was gently pinched between the finger and thumb.

Mr. Key, under whose care the patient was admitted, had, from an early date, inferred the extensive superficial laceration which was discovered.

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This case presents several circumstances of great interest, both as to the general condition of the patient and as to the injury on which his death depended. The want of consciousness seemed to be complete for the first two days, nor did he ever recover the command of his mind to any considerable degree. The pupils were contracted; the respiration was always tranquil and without sound; the pulse, from the beginning, was not oppressed, and became accelerated as the disease advanced. Violent convulsion came on about the third day, and continued increasing till the termination of life. None of his extremities were paralysed, and he was able to swallow, but he never spoke. The symptoms, then, were those of concussion and superficial laceration, in contradistinction to those of pressure. The convulsion was greatest on the right side, the mischief was greatest on the left.

The most remarkable appearances were the very extensive laceration of the surface of the brain; the change going on in some parts of the medullary substance, which was gradually assuming a decided and clear yellow colour; and the general tendency to separation in the external layer of the cineritious substance. Looking to the degree of violence which it was probable would be inflicted by slipping down a few stone stairs, we are surprised at the extent of the laceration; and as we do not find the external mischief by any means proportionate, and discover none of those internal lacerations of the brain which usually attend very severe concussions (Plate XX. Fig. 2.), we are induced to suppose that there was something peculiar in the condition of the surface of the brain, on which the

extensive laceration depended; and this we find accordingly in the state of congestion attendant upon intoxication, and in the facility with which the external layer of the cineritious substance everywhere separated. There is reason to believe that this laceration increased considerably after the first effects of the blow; and it is certain that the cineritious substance became afterwards more deeply implicated, and the mischief extended to the medullary matter, which was in the first stage of that yellow softening, probably the result of inflammatory action, which was seen in a more advanced state in the case of SIDNEY (Plate VII. Fig. 1.).

Of the dependence of convulsive action on the lesion of the cineritious matter, we have had many instances in the present volume; and we may set this case down as another in which the morbid condition of the external layer of the cineritious substance was connected with imperfection in the intellectual powers (Case CXLIII. and CLXXII. and Plate I. Fig. 6, Plate XXXI. Fig. 4.), and probably was, in some degree, a result of habitual intemperance.

Even since the occurrence of this case I have been present at the examination of a patient who died of fever; a man of intemperate habits, and who had, during the whole progress of his fever shown peculiar symptoms of cerebral irritation, with constant nervous twitchings and hurried irregular respiration, and in him the morbid appearances were almost confined to the cineritious portion of the brain, from which the external layer easily separated, as in the case I have just mentioned; and the internal part, near to the medullary matter, was so injected as to have a decided purple appearance. The rest of the brain was injected: and the spleen large, and in a state to melt away into a light red fluid jelly by slight pressure. I have also lately seen a case of pneumonia combined with fever, in which delirium was constant and sometimes violent; where the external layer of the cineritious substance was easily taken off, and the internal layer was of a pink colour.

#### CASE CCCII.

(Bottom of page 436.)

##### *Spina Bifida, with accumulation of Fluid external to the Brain.*

THE mother of this child was supposed to have gone some weeks beyond the regular period before labour came on. The head at the time of delivery was found to be of most unusual size, and a considerable quantity of fluid escaped from it as was believed, during delivery, though no laceration could be found.



## SECTIO CADAVERIS.

On opening the skull by cutting through the membranous part between the two parietal bones, which formed thin plates of considerable size, about eight ounces of clear fluid came away, and the brain was found occupying the basis of the skull, apparently flattened by the weight of the fluid. The cavity of the head was quite smooth, the bones being lined by the dura mater and arachnoid, and the falx being scarcely discoverable as a slight ridge running along the vertex. The brain appeared about the natural size, and was covered by the arachnoid, which was exceedingly vascular, and was so fine a membrane that it was separated with difficulty from the soft brain. The substance of the brain was not only soft, but was as usual of a more transparent character than the brain of the adult, and the convolutions much less separate from each other.

With the assistance of Mr. King, I examined very carefully the state of the spine: there was considerable deformity of the spinal column; the arches of the two upper vertebræ were wanting; and the spinous processes and arches of the lumbar vertebræ being deficient, left a space through which a bladder filled with fluid protruded. Viewing this spina bifida externally, it appeared as if the cutis was entirely wanting over an oval space about two inches in length, the skin being gradually shaded off round the edges of that space. A tumour filled with fluid protruded from this deficient part, the upper portion of which looked like a transparent vesicle, while the lower part was more opaque; and to this tumour the attenuated skin at the margins adhered closely. When the tumour was opened, it appeared that the lower part was formed of the dura mater lining of the spinal canal; and on this being divided from below, it was found gradually to lose itself in the more transparent membrane, becoming quite deficient at the upper half. The transparent vesicle was laid open, and proved to be a bag of serous membrane, communicating by a well-defined orifice of the size of a small quill, at its upper part, with the cavity of the cranium, a probe appearing to pass at the anterior part of the spinal cord; there was no outlet for the fluid at the inferior part of the tumour, where it formed a *cul de sac*. It thus appeared that the fluid of the spina bifida was collected in a shut sac formed by the arachnoid of the dura mater, and the arachnoid of the cord very much thickened; and on examining carefully the spinal cord, it appeared that the anterior columns were of a much whiter colour than

the posterior, and that both were nearly lost when they arrived at the pouch of the arachnoid, which was situated at the commencement of the cauda equina. The fluid having collected at the anterior part, had protruded backwards till it had pushed the fibres of the cauda equina so completely aside, that they were greatly attenuated and scarcely distinguishable; but when they had passed by the tumour, they were again seen in the form of nerves going to the sacral openings. There was also no doubt that in this case the fluid of the hydrocephalus had collected exteriorly to the arachnoid of the brain, and communicated with the spina bifida.

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When I mentioned spina bifida in a former part of this volume (p. 436.), I said that, as I had not examined any recent case, I was not able to speak positively of the situation occupied by the fluid. The present case, from the great derangement occasioned by the fluid, did not afford an example completely satisfactory; still, however, I have no doubt that in it, at least, the fluid was contained between the arachnoidal covering of the dura mater and the arachnoid of the convolutions; and I believe that it found its way anteriorly to the spinal cord, pressing it backwards to be spread over the parietes of the sac, in the way that is represented in Plate XXXII. Fig. 3. By comparing this figure and the present description with what has been said in page 436, it will be obvious that I was mistaken at first in supposing that the nerves distributed over the sac were turned backwards from their natural direction; when, in fact, the nervous fibres there seen are no other than the divided cauda equina adherent to the sac;—an error which arose from trusting to a preparation.

### CASE CCCIII.

(To follow Case CCXVIII. page 462.)

#### *Paralysis, connected with irregular Menstruation.*

SARAH CLARKE, aged 24, a woman of spare habit of body, was admitted under my care early in February 1831, affected with imperfect paralysis of her extremities. She had been married eight years, but had never borne a child. The catamenia had commenced at the age of sixteen, but had never been regular, the periods being marked generally by great pain in the loins and thighs for a couple of days, and a slight trace only of sanguinolent secretion, and she was always subject to a leucorrhœal discharge. Three years ago, the right foot had been affected with numbness and decrease of sensibility, and of the power of motion, for which no cause could be ascribed, unless it

depended on a slight injury she thought she had sustained in the back three years before. The numbness extended as far up as the knee, and continued without change for a year and a half, in spite of blisters being applied to her loins, and other remedies being tried. At this time the numbness suddenly passed to the left foot, leaving the right quite well, and gradually crept up the leg and thigh reaching the loins, where pain was occasionally experienced. For the last fortnight before her admission, the right foot was slightly, and the hands also occasionally, affected with numbness; and when she came into the Hospital, both the left and right inferior extremities were numb as far up as the knees, with dullness of sensation and imperfection in the power of voluntary motion, so that she was unable to walk on an uneven surface. She complained of some pain when pressure was made, or when a hot sponge was applied about the fourth and fifth lumbar vertebræ: there was some tenderness of the right side. Pulse 72, full and soft: tongue white and moist: bowels irregular: pupil large. She had slight palpitation of the heart; was flatulent, and apt to fall into fits of weeping; but she had no globus, nor any decided fits of hysteria.

Applicetur Emplastrum Cantharidis inter scapulas.

Habeat Pil. Aloes cum Myrrh. gr. xv omni nocte.

Sumat Infus. Cascarillæ cum Ammonia Subcarbonatis gr. v ter die.

The same treatment, with repetition of the blister, was continued.

March 31st. The strength of her legs was so greatly increased, that she was able to walk about as if in perfect health: the pain in her loins was gone, and nothing but a leucorrhœal discharge remained: she therefore left the Hospital quite convalescent.

## CASE CCCIV.

(To follow Case CCCIII.)

*Paraplegia, connected with suppressed Catamenia.*

ELIZA COLLINS, aged 19, was admitted under my care into Guy's Hospital, March 9th, 1831. We learnt that the catamenia had appeared once when she was 12 years of age, but never since that time. Her appearance was robust and rather full; but she stated that she had not enjoyed good health, and for six months had suffered pain in the head, and vertigo, with occasional sickness. About three weeks before, she began to feel great pain in the lower extremities, and they became paralytic, so that she was quite unable to support herself, although she could move her legs as she lay in bed; their power of sensation was also greatly diminished.

Habeat Pilul. Aloes cum Myrrh. gr. xv omni nocte.

11th. Habeat Misturæ Ferri comp. ʒss ter die. Repetantur Pilulæ.

15th. Applicetur Emplastrum Cantharidis lumbis.

18th. The blister has discharged very freely, and the bowels act three times daily. All pain in the legs is gone, but there is no return of power.

22nd. Repetatur Emplastrum Cantharidis lumbis.  
Repetantur Mistura et Pilulæ.

25th. Strangury from the blister.  
Habeat Infusum Lini pro potu.  
Repetantur Medicamenta.

April 4th. Applicetur Emplastrum Cantharidis lumbis; et  
Repetantur Medicamenta.

8th. She has complained of pain in the head, with decided hysteric symptoms; and has had severe cramp in the right leg.

Applicetur Emplastrum Cantharidis nuchæ; et  
Sumat Spirit. Ætheris Sulphurici ℥xx ex Mistur. Camphoræ pro re nata.  
Repetantur Medicamenta.

13th. She is able to stand, and make a slight progressive motion.

May 5th. Her progress has been constant and decided; still, however, she cannot walk without some support.

31st. Left the Hospital able to walk without support, and decidedly convalescent.

### CASE CCCV.

(To follow Case CCLXIV. page 537.)

*Epilepsy, greatly relieved by Sulphate of Zinc and a Seton in the Neck.*

FREDERICK SMITH, aged 17, was admitted under my care January 27th, 1831, the subject of most confirmed epilepsy. When about seven years of age, he fell upon the pavement and severely injured the left side of his forehead; shortly after which he experienced a fit: for the last two or three years the fits, which were before frequent, have become much more so, and now occur two or three times in a week, which his mother says is the least number she has ever known during the last three months. When the fits come on, he first experiences a palpitation of the heart, which is followed by agitation of the limbs and foaming at the mouth; he bites his tongue, and frequently remains an hour and a half in the fit: it is followed by sleep; and when he wakes, his mind appears in a state of imbecility the whole day. He had of course been under the care of many medical men, and treated in different ways.

I ordered him to be cupped to twelve ounces from the neck, and a blister to be applied, and I attended strictly to the state of his bowels. On the 21st he began with one grain of sulphate of zinc, which was gradually increased, so that on the 31st of March he was taking nine grains every six hours. A seton was placed in his neck on

the 4th of March; and on the 4th of April he left the Hospital at the desire of his friends, as he had been quite free from an attack for three weeks.

June 6th. The sulphate of zinc has been continued in five-grain doses, and he has had no return.

### CASE CCCVI.

(To follow Case CCLXVIII. page 545.)

*Epilepsy, with Aura Epileptica in the left Leg, from Disease in the Surface of the Posterior Lobes.*

RIGBY CHAMBERLAIN, a man who had been long subject to epilepsy, and had been previously under my care (see Case CCLXVIII. p. 544.), was brought to the Hospital on the 18th of February, in a most violent paroxysm, of which he had frequent returns. I ordered him to have his bowels well opened, and then began with a grain of sulphate of zinc three times a day. The fits returned often: a seton was inserted in his neck, and the sulphate of zinc was gradually increased, till by the 18th of March he was taking eight grains three times a day; and on the 25th, the same quantity every four hours, at which time he had not suffered a fit for nearly three weeks; nor had he experienced any return on the 7th of April, when the dose of the sulphate of zinc was nine grains.

April 5th. He complained of frequent returns of a peculiar sensation in the left leg, with considerable and almost constant pain: a bandage was ordered to the leg.

18th. He has had no return of fits, and the pain in the left leg is much less; but he complains that the foot of that side is in a constant state of perspiration. He often talks of a kind of "twittering" sensation in that leg, rising half way up the body.

On the 23rd he had been exposed to cold east winds, walking about the yard of the Hospital, and had now severe cynanche tonsillaris, for which twenty leeches were applied to his throat, followed by a poultice, and a blister between his shoulders. On the following day the difficulty of breathing was much increased: he was bled, his uvula and tonsils were scarified, a mustard poultice was applied to his throat, and other remedies employed, but nothing afforded relief; and he died on the morning of the 25th.

### SECTIO CADAVERIS.

Skull very thick, and remarkably heavy; and in some parts its surface assumed a rough appearance.

The dura mater looked healthy externally; but when it was cut and turned back, it was found to be thickened and ossified in small portions at the posterior part of the falx, where it was inserted into the tentorium; and there it adhered so firmly to both the posterior lobes of the cerebrum,

but chiefly to the left, that considerable portions, including the whole thickness of the cineritious substance, tore away with the membrane: this disease extended over a surface of two or three inches altogether, and some depression of the convolutions extended on the left side still further. The arachnoid was slightly opaque, and so firm, that, together with the pia mater, it was easily drawn off in one sheet. The brain was pervaded by many vessels, and the ventricles were distended by not less than four ounces of the most limpid fluid. The membrane lining these cavities was thickened, and the septum lucidum had become a transparent membrane. The pituitary gland was very carefully examined; it was situated rather deeply in the cavity between the clinoid processes, and was rather large, but in all respects bore a healthy appearance. The epiglottis was thickened, and on its superior surface, a tumour of the size of a bean, of an opaque white colour, had formed, which on being cut gave out a milky fluid; other parts about the rima and the tonsils were thickened by the same disease. The lungs were œdematous, and broke down easily under pressure. The coagula in the cavities of the heart were remarkably strong.

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The morbid appearances in this case are of much interest, as they serve to connect the affection of a particular part of the brain with particular symptoms.—It will be seen by referring to the case of the same patient (Case CCLXVIII. p. 544.), that I considered his disease, when he was under my care a year before, as a good illustration of the *aura epileptica* occurring from organic disease within the cranium: at that time the sulphate of zinc and the seton in the neck gave him essential relief; but his disease returned, as might be expected,—and he had again greatly improved under the same treatment, when an accidental attack carried him off. Examination brought to light the organic disease, and showed its situation to be such as might have been anticipated; it was entirely superficial to the brain, and was chiefly on the right hemisphere. I have already said (page 514 & 552.) that epilepsy generally depends upon irritation on the surface of the brain, and that it is often connected with unusual thickness of the skull.



## CASE CCCVII.

(See page 554.)

*Convulsion, with turgid Vessels.*

M—— L——, aged 9 years, on Tuesday, June 21st, while running along with a jug of hot tea, stumbled and scalded his forehead: it is not certain whether he received any blow on that occasion or not, but he was much alarmed. The scald, which was over a space of the size of a hand, was dressed with some simple domestic application, and the boy continued his usual occupation (as an errand-boy in a shop), apparently in good health, till Tuesday the 27th: on that day he complained of a pain in the back part of his neck, then in his head; took to his bed; became convulsed; and died in less than twenty-four hours.

It is said that on the Friday morning, the weather being very hot and he somewhat heated, he drank a pint of cold water; and this likewise has been looked upon as a possible cause of death.

It is said that he was a boy of a remarkably thoughtful disposition.

## SECTIO CADAVERIS—June 30th, 1828.

The scald, by removing the cuticle, had produced that hard brown horny state of the cutis which is common in such cases; but it had not ulcerated, and the discoloration had scarcely penetrated to the bone; the injury occupied nearly half the forehead.

The longitudinal sinus had in it a very slight gelatinous clot mixed with fluid blood. The other sinuses were rather full of fluid blood. The large vessels of the pia mater were very turgid: there was a little tendency to adhesion of the anterior parts of the hemispheres with each other. The brain itself was of natural firmness; and the only obvious circumstance striking us as worthy of remark, was the way in which the vessels followed the knife in cutting through it, so that frequently the cut surface looked as if strewed with fine hairs from a quarter of an inch to an inch in length. The vessels of the plexus choroides and of the lining membrane of the ventricles were certainly turgid. In other respects all was healthy: nor could we discover any deviation from the natural appearance in any of the organs of the chest, abdomen, or pelvis, which we examined most carefully.

## CASE CCCVIII.

(See page 554.)

*Convulsion in a Child, without Effusion.*

A CHILD, of about a year and a half old, three weeks before its death fell from a table and struck its head. At the time, no severe symptoms were observed; but four days before its death a very large swelling containing fluid having formed, an incision was made, and the pus evacuated. That day the child had a severe convulsion. The pus was evacuated by a large opening on the following day, and the child was brought to the Hospital, where it suffered a continual succession of fits till it died: between the fits the child appeared sensible.

## SECTIO CADAVERIS.

The swelling on the outside of the frontal and parietal bones had completely subsided. On removing the scalp, it was found to be separated for an extent of several inches from the skull, and to a further extent a little ecchymosis had taken place. The dura mater was not in any way affected, and the bone beneath it was perfectly smooth: there was not the least fluid effused beneath the arachnoid, but the whole surface of the brain looked flattened, so as to excite some expectation of finding fluid in the ventricles; which, however, was not the case, for they contained rather less than natural. The only manifest departure from health was in some increased vascularity in the substance of the brain, which was well marked, so that very numerous points poured out fluid blood; and there were some parts of the brain which presented a mottled appearance.

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This and the preceding case present examples of the occurrence of convulsions in children, when no effusion or obvious disorganization has taken place in the brain. In both, however, there was evidence of considerable derangement in the circulation, and of congestion.

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The two following cases have occurred to me very recently, and are strongly illustrative of two subjects introduced in former parts of this volume;—the nature of Delirium tremens, and the connection between Hydrocephalus and the tendency to tubercular disease.

## CASE CCCIX.

(To follow Case VIII.)

*Arachnitis, with excessive Irritability (Delirium tremens).*

I WAS requested on the 6th of June to see a gentleman, who after considerable exposure on the preceding day, had been attacked with acute pain in the left side. I found the pain occupying precisely the situation of herpes zoster, extending from the spinous processes of the lumbar vertebræ round to the middle line in the front: it was evidently external, and was influenced by motion, and more particularly by slight pressure, and at the back part was very acute when the hand was passed lightly over it. The pain was in plunges and paroxysms, but was generally excited by some motion of the body. There was considerable constitutional affection: tongue rather loaded and clammy: pulse quick, and manner agitated: the hand was tremulous, and the skin moist. I was immediately impressed with a conviction that I had to do with a patient whose nervous system was weakened by excessive stimulus; and I soon discovered this to be the case, and determined to be very cautious in the use of any depleting remedies, while I gave a very serious admonition regarding the abuse of spirits. A dose of calomel, antimonial powder and opium at night, with a draught of rhubarb and sulphate of magnesia in the morning, followed by a few small doses of the liquor opii sedativus in camphor mixture, and a mild liniment to the part, so far restored him, that when I paid my third visit on the 8th, I found that he had returned to his business, leaving word that he would call at my house to show himself in a day or two. On the afternoon of the following day I received a pressing message to come immediately to his residence, as he had been just brought home by two persons in a state of violence, having been suddenly seized with delirium at his office. I found him sitting by himself in his bed-room, with the window wide open, in a state of great agitation, perspiring profusely, and talking incoherently, imagining that he was surrounded by persons, sometimes looking under the bed or the chairs, sometimes talking as if he were answering questions or holding a conversation. The nature of the attack was quite obvious; and my first impression was one of horror at the risk he had run by being alone with an open window in such a state of mind; and the next was one of curiosity to know what had been the immediate exciting cause of the present attack. On inquiry I now learnt, that from the time I had strongly suggested to him the impropriety and danger of indulging in the habit of drinking, he had absolutely refrained from all spirituous or fermented liquors; and this was at once a solution of the question. Somewhat weakened by his previous febrile attack, and after a perfect abstinence from stimulants for three days, he returned to his occupation, and the present state of excitement was the result. Although his temporal artery was beating, his eyes red, his face flushed, his pulse about 90, and such as under some circumstances would not have appeared to contra-indicate depletion,

I had no hesitation, from the history I collected in conjunction with the symptoms, to desire he might immediately have a glass of brandy-and-water and a couple of eggs, and ordered him to take three grains of camphor and three of extract of hyoscyamus in the form of pills, with a draught of compound infusion of gentian and five grains of the subcarbonate of ammonia every four hours. He was never to be left for a moment, but no restraint to be used if it were possible to do without. He was decidedly more composed after his meal, but he passed a restless night, without sleep, and was occasionally very violent, rising from his bed and pursuing imaginary persons. He was more tranquil when I saw him, and on the whole appeared better; but was quite lost, sometimes beginning to answer questions correctly, and then running on to the objects of his fancy. His pulse was still excited; his tongue clammy, and his aspect wild; temporal artery beating strongly, and looking large and tortuous. I desired him to choose his own dinner, and he seemed to prefer fish, with which I ordered him to take three glasses of wine; and I prescribed a grain of calomel and three of hyoscyamus to be taken every third hour, and an evaporating lotion to be applied constantly over his forehead and temples. The mixture to be continued.

On the 11th he was somewhat more coherent, though he had passed a very restless night, with frequent indications of violence. His bowels were not open, and his abdomen was rather tumid; his tongue was clammy, and his skin perspiring; and as he slept, his hands were in constant motion, like the subsultus and picking of the most advanced continued fever. I ordered him to continue his calomel and hyoscyamus, and to take an additional five grains of calomel at night, and a dose of rhubarb and sulphate of magnesia in the morning. His diet still to be generous, with a glass or two of ale in addition. He fell asleep about six o'clock, took his calomel at eight o'clock, and slept soundly the whole night, awoke refreshed, had three or four copious evacuations, and when I saw him the following day, was completely rational, and his manner steady and collected; in which state he continues, having returned to his usual occupation.

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In this case several circumstances are worthy of observation. The first attack was peculiar, and in its situation so exactly corresponded with the usual seat and extent of herpes zoster, that, taken in combination with the general condition of the patient, it affords an additional clue to the connection of that curious disease with the operation of the nervous system. (See page 383 & 503.) The circumstances which brought on the attack of delirium, and the predisposing condition of the patient, are peculiarly characteristic. (See page 26 & 134.) And the operation of diet and remedies of such a kind as the symptoms alone, without the history and without a knowledge of the disease, would lead an inexperienced person to consider as least appropriate, is very illustrative of the nature of this

disease, and of many of those nervous affections which are so greatly modified by irritability.

## CASE CCCX.

(To follow Case CLXX.)

*Effusion of Serum into the Ventricles, in a Boy disposed to Tubercular Disease.*

A BOY of 14 years of age was admitted into Guy's Hospital June 1st, labouring under symptoms of head affection with fever. It appeared that for five or six weeks he had been drooping, and was not considered well; and eight days ago had been seized with acute pain in the head and stomach: little or no medical assistance had been given him; and he now had most of the symptoms of advanced continued fever,—quick pulse, hot skin, and loaded tongue, to which was added a peculiarity of manner, which at once showed that the head was in a particular way the subject of disease. He made little complaint, but lay on his side with his legs drawn up and his eyes closed: when desired to put out his tongue, he drew his lips about and closed them, a little in the manner of a patient with chorea; and when strictly questioned, said that he had pain in his head: but he was unwilling to speak much, and quickly laid his head upon the pillow:—at night he was delirious. His head was shaved, calomel was given in frequent small doses, and cupping, leeches, and blisters were employed. Under this treatment some slight improvement of the febrile symptoms took place, but not marked, and his delirium rather increased. When I saw him on the 7th, I found that the tongue was not protruded straight; that the left cheek was somewhat paralysed; that the left hand fell motionless by his side when raised, and appeared nearly insensible when pinched; the leg and foot on the left side were sensible, and when pinched he drew them up; both the eyes were drawn to the right side, and he lay with his head turned to that side constantly. The pulse was 130. In spite of remedies,—amongst which were cupping from the neck, a blister to the head, and the repetition of small doses of calomel, tartarized antimony and opium every second hour, and the mercurial friction three times a day,—his pulse became more rapid, and he sunk on the 9th.

## SECTIO CADAVERIS.

When the calvaria was raised, a considerable quantity of blood issued from the divided vessels of the dura mater, particularly at the back part. There was no effusion under the arachnoid, nor was the vascularity very marked, but that membrane and the pia mater appeared peculiarly thin and transparent, and adhered with unusual firmness to the convolutions. The convolutions were flattened, and when the hemispheres were drawn asunder, the corpus callosum was evidently arched from fluid in the ventricles. The arachnoid and pia mater came from the convolutions without

tearing off any part of the cineritious substance, but the external layer of that substance separated rather easily when the membranes were removed and the convolutions were pressed between the fingers. When the brain was divided by transverse slices, the medullary substance was not particularly vascular, but the internal layer of the cineritious substance was pink, the colour not separated from the gray by a distinct line, but dying away imperceptibly. The ventricles contained full two ounces of perfectly pellucid fluid; the foramen of Monro was permanently dilated; the septum lucidum was firm, strong, and opaque, with medullary matter, showing its division at each end, when cut longitudinally and in an horizontal direction, very distinctly. The choroid plexus was exsanguine, except the large vein which runs along it, which was turgid. There was a little serum collected under the arachnoid, at the base of the right anterior lobe; but whether it had found its way there from some other part, during the dissection, was doubtful.

The lungs were completely interspersed through their whole substance with miliary tubercles, in an early, but by no means inactive state; looking at the surface of the upper lobes, these were thickly distributed as transparent seeds, scarcely elevating the pleura, and on looking carefully into them, many were observed to be opaque and slightly yellow towards their centres. On pressing the lobe it felt as if very small shot were thickly disseminated through it. In the lower lobes the same appearance occurred, but in a less advanced state. The surface of the liver was thickly sprinkled with very small white granules, which seemed to be deposited beneath the peritoneum, and tore off with it. The peritoneum lining the corresponding part of the abdomen and that covering the whole diaphragm was thickly sprinkled with little miliary tubercles, and the spleen contained a number of such bodies, advancing to a state of complete softening, with a yellow and suppurating appearance.

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In this case we have another instance of that tendency to hydrocephalic disease, which is often found to co-exist with a disposition to form tubercles even where no tubercular disease is to be discovered in the brain (p. 361.). We have likewise here presented a case of hydrocephalus where the ventricles were both distended, but where still the paralysis was confined to one side. It is no easy matter to explain phenomena of this kind. Our examination was so minute, that we can scarcely have overlooked any ma-



terial organic change ; and unless we ascribe the affection of the left side to the pressure having been made on the right, from the position in which the patient almost constantly lay, we must suppose that there was some circumstance in the condition of the right hemisphere rendering it more liable to suffer, from the same degree of pressure, than the left. The lungs were in precisely the same state as those described in page 621, Case CCXCIII.

## CONCISE STATEMENT

### OF THE DISEASED APPEARANCES OF THE BRAIN AND ITS MEMBRANES.

THE brain is liable to the same sources of derangement, in regard to structure, as other organs; and we find it participating in the same morbid actions, modified by the peculiar circumstances under which it is placed: before, therefore, I enter upon a particular enumeration of the various appearances which are discovered in the diseased brain, I shall take a cursory view of some of those actions on which the most important alterations of its structure depend.

There is no organ of the body liable to such rapid, violent or frequent changes in the state of its circulation, as the brain; and while the excitements to which other organs are exposed are in some degree limited, those which act upon the brain seem to be almost unlimited, augmenting with every increase of luxury and civilization. In proportion as the great concerns of life grow more complicated and its interests more involved, the brain becomes the more exposed to those causes of mental excitement which produce disease; and as luxury brings intemperance and perverted habits in its train, the strictly corporal agencies exert fresh influence over the circulation: and it is impossible for us not to feel admiration at the wonderful power of resistance by which the brain is daily preserved from disorganization, when we consider the intensity of mental application to which it is often exposed, the violence of internal strife by which it is agitated, the heedless stimulation to which its vessels are subjected, and the rapid vicissitudes of temperature, and the severe and neglected external injuries to which it is liable. Still, however, there are limits to this power; and sometimes by the violence of vascular action, sometimes by its long continuance, the vessels become deranged beyond the power of immediate recovery, and a state of INFLAMMATION or of CONGESTION is induced;—the former, a condition of excessive action; the latter, a state in which the vessels being unable to free themselves from the blood they have received, become gorged and overloaded. Inflammation exists in two different forms;—the one accompanied with much general action of the system, and therefore called active, the excitement of the part communicating itself to the heart and large vessels, which in their turn act

forcibly upon the seat of injury :—the other form of inflammation is apparently confined more strictly to the minuter portions of the circulation, inducing actions less overwhelmingly, but often, not less certainly destructive to healthy organization.

To the former of these modifications of inflammatory action we owe the most severe and formidable symptoms, terminating in the same results as ensue from inflammation in other structures. As long as the action is moderate or of short continuance, the change is confined to increased vascularity; but under other circumstances, it goes on to the effusion of serum, the throwing out of fibrin, or the formation of pus; and in the soft substance of the brain these changes induce, in the progress of destruction, a variety of appearances somewhat peculiar, owing to the peculiarity of the texture involved. When the more chronic inflammatory action is set up in the vessels of the brain and its membranes, much less immediate disturbance of the system is produced, little or no general commotion is experienced, the heart and arteries are scarcely stimulated, the heat of the body is not increased, and it is difficult to say where the action begins to put on an inflammatory character; it is like the process taking place in the stomach of the intemperate man, or in the kidneys of the habitual gin-drinker. The natural circulation is kept at its stretch, the operating vessels by which the intimate and the minute processes of the organ are maintained are too frequently or too forcibly stimulated, and changes gradually take place which permanently impair or destroy these functions. These changes are often possibly so minute as to elude research; but often escape observation from want of due attention, or are passed over from the fear lest we should be considered triflingly minute in the investigation or record of appearances,—an apprehension which no man ought for one moment to entertain, when seeking into the processes of nature; whether, with the anatomist and the physiologist, organized matter is the object of his research, or with the chemist he turns his attention to substances which are unorganized.—By the slow processes of chronic inflammation diaphanous membranes become opaque; their natural divisions into laminæ and layers are obliterated, and their textures so far changed that the healthy balance between exhalation and absorption is destroyed. In more solid substances, as the brain, minute particles are displaced, till organic arrangement ceases to be symmetrical; fibres change their direction and their relation to each other; parts become irregularly consolidated and contracted; unnatural approximations and

unhealthy separations are the result; general hardness or preternatural softness is induced, the translucency of parts becomes impaired and their colour changed. Thus we have a variety of appreciable alterations dependent upon increased action; and, minute as many of them may be, when we consider the nature of the functions to which the brain is destined, it would be as irrational for the physiologist to pass them by unobserved, as it would be for the optician to neglect the transparency of his glass, the machinist to despise the temper of his steel, or the natural philosopher to overlook the completeness of his galvanic or electric circle. It is in truth to the agency of inflammation under its different modifications that we owe a very large proportion both of the slight and the confirmed organic changes.

The peculiar situation in which the brain is placed, surrounded on all sides by an unyielding case of bone, renders it in a remarkable degree liable to suffer from **PRESSURE**, when a force is applied internally or by the injection of the vessels. It has been a matter of speculation whether the brain is capable of being compressed; but, whether the particles of its substance are compressible or not, there can be no doubt that as an organized body it may suffer in this way, as the texture of any other organized substance may be compressed even to complete destruction, or as, in the simple process of packing cotton goods under pressure, the tenacity of the thread has often been entirely destroyed. When vessels become distended beyond the power of contraction, though the individual vessels may be exceedingly minute, yet in a complicated system of vessels such as pervades the brain, the whole quantity of blood above that which usually circulates in the part is very considerable; and as there are no means by which a corresponding portion of the usual contents of the skull can be removed, pressure is the inevitable result. This state of **CONGESTION** is a fertile source of mischief, and in its more moderate or its severer forms gives rise to symptoms, varied, distressing and fatal, and leaves behind it traces which are not obliterated by death.

Another source of diseased appearance in the brain is to be traced in **SCROFULA**, a malady which presents many interesting phenomena as regards the original constitution of the system; and amongst the results of that defective condition on which the manifestations of this disease depend, certain cerebral affections are very marked; so that there is nothing more frequent than to find the same individual who is the subject of diseased mesenteric glands, or tuberculated lungs, or tuberculated peritoneum, affected

with scrofulous tumours within the skull : and so likewise we see children of scrofulous families, in whom none of the obvious diseases I have mentioned have ever made their appearance, become the subjects of decided head affection. What is the precise essence of the scrofulous diathesis ; in how far it depends upon the construction of vessels ; or in how far it is to be ascribed to the direct influence of the nerves,—still remains a matter for investigation : but that the feeble powers of resisting mischief which accompany this diathesis greatly predispose to disorganization, and more particularly to effusion, is most certain ; and even when no tubercular disease can be detected, the effusion of serum in the form of hydrocephalus frequently occurs. Of the connection of scrofula with disease in the brain we have several examples in the course of the present volume, and the works of most of those who have written on the subject afford similar cases ; so that we must look upon the scrofulous diathesis as one of the most powerful predisposing causes of cerebral disease.

That state of the constitution which favours the development of **MALIGNANT DISEASE** is apt to lay the foundation for affections of a similar character in the brain and its membranes. This class of diseases includes several species, which vary considerably in their external aspect, and perhaps in their mode of growth ; but they are apt to be combined or to pass so nearly into each other, that it is by no means easy to draw distinct lines of separation between them, and they probably owe many of their modifications rather to the original temperament of the individual in whom they arise, or to casual circumstances regarding the state of the circulating system, than to any essential difference in their nature. The three most distinct forms in which malignant disease presents itself are, the true scirrhus, melanosis, and the fungoid disease including medullary sarcoma and fungus hæmatodes, with some modifications of these ; and in one point at least they all agree,—that in whatever way they are first generated in the system, they become most decidedly constitutional, and show themselves extensively in various and distant organs.—For some very excellent observations on the structure and growth of diseases belonging to this class I must refer to the elaborate and interesting paper of my friend Dr. Hodgkin, in the fifteenth volume of the *Medico-Chirurgical Transactions*, and shall content myself with saying a few words respecting them as connected with the brain.

Amongst the foregoing cases, two well marked instances of malignant disease affecting the brain and its membranes will be found. One of them

was of a decidedly fungoid character; the other had more of the character of scirrhus. In the former (SIDNEY, Case LXV.) the testis and the lungs were most completely involved, and a malignant tumour was imbedded in the substance of the brain. In the latter (BOLIETHO, Case LXIV.) the lungs and the liver, together with some of the absorbent glands of the abdomen and of the thorax, were affected, and the disease within the brain was completely attached to the arachnoid and pia mater. Whether this is to be considered a casual coincidence, or whether the one form of disease has more tendency to fix on one part than the other, must be a matter of future observation: but in the case of a child, which is related by Mr. Henry Earle, in the third volume of the *Medico-Chirurgical Transactions*, and in which there is in all the circumstances, except the age, a most exact correspondence with the case of SIDNEY, I find the tumours were imbedded in the same way in the substance of the brain. I also find, by a reference to Dr. Hooper's plate of melanosis in the brain, that the tumours in that case were imbedded in the brain; and this disease, as far as I have had opportunities of examining it, in the liver (for I have never examined the brain affected with it), seems to have a great affinity, in its mode of growth, to fungous diseases. On the other hand, where the malignant disease assumed more the form of scirrhus, attacking the mamma (in a case from which preparations were preserved in the collection of the late Mr. Chevalier), it seemed connected with the membranes of the brain; and in a case lately examined by Dr. Hodgkin the same fact was observed. This last was the lady from whose mamma a tumour, partly fungoid, but chiefly in a state of true scirrhus, was removed some time ago, and of which a drawing is given to illustrate the paper to which I have just referred: she died with the same disease affecting the uterus and kidneys as well as the dura mater of one hemisphere, from which a tumour made its way through the cranium; and the arachnoid of the other hemisphere was also affected. And these facts correspond, to a certain degree, with what was observed in the case of BOLIETHO (Case LXIV.); for in him the malignant structure of the lungs assumed a much more hard and scirrhous character than in the other case, and the glands external to the thorax were small and of a stony hardness, while the disease in the head was entirely attached to the membrane. I would not, however, lay much stress upon these distinctions, for I am by no means certain that there is so great a specific difference between scirrhus and fungus as to warrant us in expecting that they should gene-



rally attack different textures when they are found in the same neighbourhood; and if it should be satisfactorily made out that such is the case, it would be one of the best proofs we have of their differing essentially from each other.

Another action on which many of the derangements of the brain depend, is the morbid tendency TO DEPOSIT BONE. This perverted action is found to exist in various parts of the body: the serous membranes, the absorbent glands, the secreting glands, the coats of arteries,—all furnish frequent instances of this tendency; and in the brain we find it very prevalent, showing itself by increased thickness of the natural bony structure, by irregular deposits of bone upon these parts, by ossifications of the dura mater and arachnoid, by ossification in the vessels, and by the deposit of bone occasionally in the very substance of the brain.

The extent of serous membrane connected with the brain is very great, covering the convolutions, and lining the dura mater and the whole extent of the ventricles; besides which, the pia mater appears to secrete serum freely within its meshes: thus, when from any cause the balance of circulation is destroyed, SEROUS EFFUSION is very apt to take place; and from the unyielding nature of the parietes, any unusual accumulation of fluid very quickly produces manifest effects; and a much smaller quantity of serum, if rapidly effused, will destroy life in the brain, than if in connection with any other organ or cavity. The causes which produce serous effusion are no doubt the same in the brain as in other parts; but, from the circumstances I have just mentioned, they are more easily called into action, and more injurious when they exist. It appears that serous effusion in the brain is the result of common inflammation, and of that peculiar inflammation which often accompanies the scrofulous diathesis, sometimes attended by actual tubercular deposit; and that it also arises from congestion, and from debility. We thus ascribe a very wide range of disease for the production of this effect, but it is not assuming greater latitude than we allow in considering the causes and nature of dropsical effusion in other parts.

Having premised these few general remarks on some of the more prevalent causes of disease in the head, I shall now proceed to an enumeration of the principal morbid appearances.

*I. DISEASED APPEARANCES OF THE EXTERNAL SCALP AND PERICRANIUM.*

Though the diseases of the scalp scarcely form a part of the present investigation, yet as they have occasionally laid the foundation for diseases of the bone and of the membranes, it will be well briefly to enumerate some of them.

The scalp is subject to excessive vascularity and congestion, and to inflammation of a truly phlegmonous character, in common with other parts of the body, either spontaneously, or from blows, lacerations, and cuts. It is likewise very liable to be attacked with erysipelas; and frequently inflammation, when induced even from common causes, in this part assumes an erysipelatos character; and sometimes the cellular membrane beneath the scalp runs into that condition which attends carbuncle. The scalp is likewise subject to several specific diseases, some of which it suffers in common with other parts of the body, and to some of which it is much more liable than other parts are, although they participate in them to a certain degree. Amongst those diseases to which it is peculiarly, though not perhaps exclusively, liable, are the different species of porrigo and sycosis; while lepra psoriasis, eczema, rupia, and syphilitic ulceration, attack the scalp in common with other cuticular textures. Encysted and other tumours also form not unfrequently in the cellular structure, between the hairy scalp and the tendinous expansion of the occipito-frontalis muscle. The muscular and tendinous structures are occasionally the seats of rheumatic inflammation; and the tendon is likewise liable to be injured by accidents, and to inflame, and to slough. The pericranium is frequently separated from the bone, as the result of common inflammation, and then a corresponding separation is occasionally found between the skull and the dura mater. Still more frequently the causes which induce periosteal inflammation in other parts, act upon this; producing thickening of the membrane, and nodes, which go on to suppuration and to the exfoliation of the bone. Sometimes a chronic inflammatory action is kept up for an indefinite period in the pericranium, whence arises an unnatural deposit of bone on the external surface of the skull; and it is probable that morbid action is seldom continued long upon the pericranium, without the dura mater, which acts as an internal periosteum, suffering in some degree.

## II. DISEASED APPEARANCES OF THE SKULL.

The skull is subject to—

1. *Great enlargement in its extent*,—as in chronic hydrocephalus, where the bony parietes are often perfected by the process of ossification being set up in many more points than natural, and thus many additional bones are generated (page 431, 433, 434. Plate XXXII. and XXXVII.).

2. *Insufficient evolution*.—This probably sometimes takes place owing to the too early closing of the sutures, in which case undue pressure will be made upon the brain, producing the same result as too rapid an increase of the brain.

3. *Imperfect ossification*.—This is frequently but a temporary imperfection, the sutures being kept open after the natural period, either owing to the distention occasioned by accumulated fluid, or to defective powers of generating bone; so that up to the age of three, four, or five years, the sutures may be unclosed, or insulated patches of membrane may be distributed in different parts of the skull (Cat. Mus. Guy, No. 1057). At other times the imperfection in the skull is so complete, that a portion of the membranes and of the brain itself protrudes, forming the congenital *hernia cerebri* (page 437).

4. *Deficient deposit of bone*, rendering the skull too thin.—The skull varies considerably in thickness, consistently with health; but it is often observed to be thin when fluid has accumulated within it, as in chronic hydrocephalus; so likewise when partial or circumscribed accumulations of serum have taken place (page 247, 437. Plate XXI. Fig. 4. Plate II. Fig. 1.), or when those glandular bodies around the longitudinal sinus are very abundant (page 247), the skull covering those parts is extremely thin. When, therefore, we find the skull remarkably thin, there is reason to believe unusual pressure has been made, owing to the early excessive development of the brain.

5. *Superabundant deposit*, almost entirely doing away with the cancellated structure of the diploe, and converting the whole into a texture resembling ivory rather than bone, with or without unusual thickening.—This appearance is often seen in cases of epilepsy (page 528, 530, 532, 541, 643).

6. *A spongy arrangement of the bone*, producing great increase in the thickness of the skull, with or without evidence of any great increase in the actual quantity of bony matter deposited.—This sometimes commences at a very early period, and sometimes proceeds to the most extraordinary

extent; so that in the Museum of Guy's Hospital we have a portion of the skull nearly an inch in thickness, but resembling in its texture a piece of pumice-stone, rather than the firm substance of the skull. (Cat. Mus. Guy. No. 1067 and 1068.)

7. *Irregular deposit of bony matter*, producing elevations about the sutures (page 526, 537), or a more or less well marked, mammillated appearance on the external surface (page 541. Plate XXXIX.), or an irregular botryoidal surface internally (page 504. Cat. Guy's Mus. No. 1073 and 1074), or a more regular deposit on certain parts, till by their thickness they encroach considerably upon the extent of the cavity; and this usually takes place in the frontal bone (page 528, 541).—This irregular deposit is sometimes marked by the unusual prolongation of particular parts, as the clinoid processes; or it sometimes interferes with the natural outlets, as the foramina through which the nerves and vessels pass from the skull, or assumes the form of a distinct exostosis. Symptoms of irritation, or of pressure, are most prominent in such cases, according to the nature and situation of the deposit. Epilepsy and neuralgic symptoms are those which generally result from disease of this kind.

8. *Diploe gorged with blood*.—Where great congestion has taken place in the head, it is not uncommon to find the bone, but more particularly its internal cancellated structure, of a purple-red colour throughout (page 223, 624).

9. *Softening of the diploe*.—This is sometimes the result of carcinomatous disease, and sometimes it is produced by common inflammation, the bone becoming exceedingly brittle (page 146).

10. *Death of the bone*.—This takes place either in the internal or the external plate alone, or in the whole thickness of the bone, the part being thrown off by a process of exfoliation from surrounding absorption; and in some cases of chronic inflammation, or such as have been the result of different forms of ulceration in the contiguous parts, the process of absorption, by which the dead bone is separated, is beautifully shown by the deep furrow of separation which insulates the dead from the living portion. Indeed there is scarcely any process which shows the power of living action so forcibly as this absorption of bone, of which we may see still more striking examples in the worm-eaten appearance which is to be traced in the substance of stony hardness composing the teeth of animals as the elephant, which undergo a regular and constant absorption, to make way for the successive new teeth.

11. *Ulceration of the bone with exfoliation and absorption, and irregular deposit of bony spicula.*—This takes place from diseases attacking the scalp or the face, as in some cases of lupus, in which the bone is often ulcerated and absorbed quite to the dura mater; and still more the irregular deposit of bony spicula is observable in that form of disease known by the name of Osteosarcoma.

12. *Fractures*, in various directions, often accompanied by the laceration of vessels and the effusion of blood, or by serious mischief to the brain and its membranes, and not unfrequently followed in the process of reparation by irregular deposit of bone, which becomes a source of irritation or of pressure.

### III. DISEASED APPEARANCES BETWEEN THE DURA MATER AND THE SKULL.

13. *Dura mater unusually adherent to the skull.*—This circumstance does not appear to be decidedly morbid, or connected with any peculiar disease, but I have observed it in a greater degree where chronic disease has existed (page 44, 353, 373, 381).

14. *Dura mater very slightly adherent to the skull.*—This is sometimes so remarkable, that there has scarcely been found the least impediment to the removal of the calvaria.

15. *Dura mater separated by violence from the skull.*—This appearance is by no means uncommon where great injury has been sustained; but the space between the membrane and the bone is generally filled either with blood or pus.

16. *Blood deposited between the dura mater and the skull.*—Where this takes place, it is usually the effect of injuries and blows; and the blood, if a few days have elapsed since the accident, is found remarkably adherent both to the bone and to the membrane, generally forming an irregular mass, as from a combination of several clots (page 151, 404, 407). Blood effused in this situation produces decided symptoms of pressure, and when it goes to any considerable extent has sometimes been evacuated by operation.

17. *Lymph deposited between the dura mater and the skull.*—This appearance I have particularly observed as a sequel to accidents when inflammatory action has been excited, and in some cases these circumstances have been connected with epilepsy (page 145, 543). Occasionally, when this deposit has been of long standing, it gives rise to a very strong adhesion of the dura mater to the skull; and as the membrane itself becomes partially lacerated,

the shreds of the membrane have the appearance of adventitious deposit (page 373).

18. *Pus formed between the dura mater and the skull.*—This is often the result of fractures ; but, independently of these, it arises as a secondary effect of blows and injuries (page 34, Plate I.), and from the inflammation communicated to the dura mater from chronic abscess within the brain (page 157) ; and not unfrequently it will be found connected with a puffiness of the corresponding portion of the scalp (page 155).

#### IV. DISEASED APPEARANCES OF THE DURA MATER.

19. *Dura mater very vascular.*—The state of the vessels of the dura mater may differ considerably, from various adventitious circumstances ; as the position of the head after death, or some casual occurrence at the time of death ; but, independently of this, they are sometimes gorged with blood, which, on the removal of the calvaria, issues from every divided vessel which united the two surfaces. This appearance is sometimes seen when inflammatory action has been going on (page 150, 367) ; it is also very striking when great congestion has occurred in the chest, as in bronchitis or diseased heart (page 231, 238) ; and is frequently seen in cases of epilepsy, when probably the vessels have been habitually distended, and have become peculiarly so during the last struggle ;—in some cases of apoplexy (page 283, 287, 293) ;—in some cases of slow paralysis, in which cerebral congestion has long existed (page 379, 632) ; and where the blood has been detained in the head by mechanical pressure, as in suspension (page 223).

20. *Dura mater tinged with bile.*—This appearance occurs in jaundice, and varies greatly in different cases. It is often very intense, particularly in some cases of acute jaundice ; and probably the morbid state of the blood circulating in the brain and its membranes during this disease, will in part account for the drowsy listless state into which the patients fall (page 221, Plate XVIII.).

21. *Dura mater apparently full.*—This sometimes goes to such an extent, that on viewing the dura mater externally the moment the calvaria is removed, it has the appearance of a fully inflated bladder, and is elastic to the touch. This may arise from effusion of fluid between or beneath the membranes, or from effusion within the ventricles, or from augmentation in the bulk of the brain itself.

22. *Dura mater apparently corrugated.*—This condition, which is exactly



the converse of the last, seems frequently to arise from the circumstance of a puncture having been made into the dura mater, in the operation of removing the calvaria, and an opportunity having thus been given for the escape of fluid from within (page 44); but, independently of this, we occasionally see the dura mater falling down upon the convolutions, so as to convey the idea that the contents had scarcely filled its cavity, particularly in the case of aged and emaciated persons.

23. *Dura mater more dry and transparent than natural.*—This is a state to which the true serous membranes are not unfrequently reduced. Thus the pericardium or portions of the peritoneum are seen quite transparent, and it appears to depend in these membranes upon a deficiency in the secretion. Something of the same kind is occasionally seen in small portions of the dura mater, but it is not frequent.

24. *Dura mater marked by the effects of circumscribed inflammation.*—We find the dura mater vascular around some lodgement of pus, or other injury (page 35, Plate I. Fig. 2.); or in a state of ulceration or discoloration from injuries or abscesses (Plate XII. Fig. 1. p. 161; Plate XI. Fig. 4. p. 149; p. 121, 155).

25. *Dura mater thickened or opaque.*—This is the result of chronic inflammation; and is sometimes general (page 167, 376), sometimes very partial (page 295): when it goes to any considerable extent, it produces symptoms of pressure and irritation, and seems connected with the epileptic condition (page 543, 546).

26. *Dura mater ossified in its internal texture.*—This is an appearance very different from the lumps and plates of bone which are sometimes found upon the surface of this membrane; for here the bony matter assumes a fibrous arrangement, apparently following the fibres of the membrane. The best marked instance of this which I have seen, was in a case of chronic hydrocephalus of long standing, in which the sutures of the skull had been obliterated (page 435. Plate XXXI. Fig. 2). In the Museum of Guy's Hospital there is a curious and beautiful appearance of bony deposit, following the course of a small tortuous vessel in the dura mater.

27. *Fibrous tumours growing from the dura mater.*—These tumours are different from the fungoid tumours which appear to be connected with the arachnoid of the dura mater; they arise from the structure of the dura mater itself, with which they are intimately joined, and from which they are inseparable, without tearing that membrane.

28. *Malignant diseases of the dura mater.*—These diseases occasionally seem to originate in the dura mater; and when this is the case, they are often connected with carcinoma of a scirrhus character in other parts of the body. (See page 655.)

V. DISEASED APPEARANCES OF THE ARACHNOID LINING THE DURA MATER.

29. *Increased vascularity of the lining membrane of the dura mater.*—The internal surface of the dura mater is lined with a membrane considered as a duplicature of the arachnoid; and whatever may be the views entertained respecting the degree of vascularity which belongs to the arachnoid covering the convolutions, it is quite evident that this lining membrane becomes, under inflammation, very vascular. (See HOOPER, Plate I.) This, as well as all the results of inflammation in this part, is generally confined to the membrane covering one hemisphere, the longitudinal sinus affording the line of separation (page 36).

30. *Spongy state of the membrane lining the dura mater.*—When the inflammation has been long continued on this part, or even in febrile irritation, I have seen this membrane assume an almost villous surface,—not apparently from the deposit of new matter, but from a slight effusion of serum into its own texture (page 146, 187, 367). Sometimes the soft and spongy surface is but little coloured; at others it is red, apparently from the blood in its vessels; and when it is torn from the dura mater, that membrane often remains red and injected.

31. *Fibrin effused upon the membrane.*—When inflammation has been very severe, it is by no means uncommon to see the internal surface covered with a thin layer of fibrin, into which, if it has been some days formed, vessels may be traced, while little or no adhesion has taken place between it and the arachnoid covering the convolutions. This appearance is sometimes the result of idiopathic inflammation, but more frequently of wounds. Dr. Hooper (Plate II.) has given a beautiful delineation of this state of disease.

32. *Pus effused from the surface of the membrane.*—This seldom takes place to any great extent; and when pus is found in this situation, it is usually but thinly spread over the membrane (page 36), like an altered secretion rather than the produce of an ulcerated surface.

33. *Ecchymosis of the arachnoid lining the dura mater.*—This is occasion-

ally the result of accidental effusion of blood beneath the membrane, but is at other times the result of disease, assuming the appearance of Purpura. One of the best marked instances I have seen, was that from which the drawing represented in Plate XXXI. Fig. 1. was made, taken from a woman in whom hepatic obstruction was combined with severe cerebral symptoms. In this, the whole internal lining of the dura mater was spotted over with red points, which formed themselves into clusters.

34. *Carbonaceous deposit in the lining membrane of the dura mater.*—This appearance is formed of numerous minute spots or small lines of a dark colour, sometimes giving to a considerable extent an actually black hue. I believe it to be the result of extravasated blood, probably under some peculiar circumstances as to the situation it occupies, having scarcely escaped out of the substance of the tissue to which it belonged: it is so completely in the lining membrane, as to allow of being stripped off with it (page 272. Plate XXIV. Fig. 3).

35. *Plates of bone on the inner side of the dura mater.*—These are various in extent and situation, but most frequently occur upon the falx, or near the part where the dura mater separates to form the longitudinal sinus: they are sometimes flat (page 232), and sometimes in the cauliflower form (page 18), but are more frequently thicker in the centre than at the edges, assuming the form of an irregular flattened cone. They are covered by the arachnoid, and easily detached from the dura mater, into the intimate composition of which they do not seem to enter. There is reason to believe that such deposits occasionally produce irritation, and predispose to diseases of nervous excitement (page 595).

36. *Tumours from the internal lining of the dura mater.*—Many of the tumours which are spoken of as arising from the dura mater, probably have their origin in this lining membrane; for when they are of small extent, and apparently of no long standing, they are generally removed with ease, together with the membrane, by the handle of the scalpel, leaving but a slight mark upon the dura mater; and on examining the other side of the dura mater, it is evident that they enter very little into the structure of that membrane. Tumours thus situated, in their gradual progress produce symptoms of increasing imbecility both of mind and body; but the mind appears to suffer more in proportion than the body, which is more liable to convulsive than paralytic affections, though both occur, paralysis being more the effect of the gradual increase of bulk in the

tumour; and convulsion, of the temporary irritation and excited circulation around it (page 345, 347, 541, 547. Plate XXVI.).

37. *Lining membrane of the dura mater adherent to the arachnoid of the brain.*—Morbid adhesions of this kind vary greatly in degree and extent. Sometimes, as we draw up the dura mater, we find it attached by fine filamentous bands, which scarcely offer any resistance (page 138): at other times, as we approach the source from which inflammatory action has proceeded, we find the two membranes closely attached and welded together; and frequently, when we try to separate them, not only the membranes tear away, but a portion of the brain beneath is raised together with them. In the foregoing cases, we find this condition of the membranes connected with superficial ulceration; with abscesses; with tumours; and with lesions of long standing: (see Plates XIII. XXIV. XXVI. XXVII. & XXIX.).

38. *Serous fluid effused between the arachnoid of the dura mater and that of the convolutions.*—Although we might naturally expect to find serum frequently in this situation, when we consider that a serous membrane is spread out on both sides, yet it is by no means common to see any decided effusion in this part; and when effusion takes place on the surface of the brain, it is in a great majority of cases confined to the cellular tissue of the pia mater. We do, however, find it occasionally in small quantities; and in some cases of chronic hydrocephalus this is the original situation of the accumulated fluid, more particularly in those cases where it is accompanied by spina bifida. In other cases of chronic hydrocephalus the fluid obtains this situation in the progress of the disease, by escaping from the ventricles in which it was secreted: (see cases of CHRONIC HYDROCEPHALUS.)

39. *Blood effused between the arachnoid of the dura mater and that of the convolutions.*—This is sometimes the result of such ruptures of vessels as cause apoplexy; indeed it is by no means an uncommon situation in which to find blood effused on such occasions: sometimes vessels are ruptured the exact situation of which is not discovered (page 268); at other times, aneurisms of the cerebral vessels burst in this situation (page 266); ulcerations of the cineritious substance are sometimes possibly the cause of the effusion (p. 147); and sometimes effusions which have commenced in the substance of the brain, find their way out, and the blood occupies the space external to the arachnoid of the convolutions (p. 276. Plate XXI.

Fig. 1, 2). Lacerations of the brain are very apt to produce effusions of blood more or less extensive in this situation (p. 434, 436); and sometimes,—though the first symptoms resulting from the fall have been but slight,—they have increased with the gradual increase of the effusion (p. 268, 269). When blood is effused in this situation, the attack appears often to be accompanied with considerable pain; and if the cineritious substance has been much lacerated, as in cases of concussion, convulsion is experienced; but if there have been no laceration, I do not know that this is the case.

#### VI. DISEASED APPEARANCES OF THE SINUSES OF THE DURA MATER.

40. *Sinuses thickened.*—We sometimes find the membranes forming the parietes of the sinuses remarkably thick and solid, sometimes almost cartilaginous, probably the result of chronic inflammation, in which they have partaken with the rest of the dura mater.

41. *Longitudinal sinus obstructed by the glandule Pacchioni.*—It is necessary that the eye should be well accustomed to the appearance of the internal membrane of this sinus, or we may easily be betrayed into mistakes; for between the meshes formed by the ligamentous bands which cross the cavity, a number of the small globular glands project, varying in every subject; but occasionally they are so exuberant in their growth, that there can be no doubt of their affording an obstruction to the passage of the blood, and there is reason to think that they are in this way occasionally the cause of apoplectic seizures. (Plate XXI. Fig. 3. p. 548.)

42. *Glandule Pacchioni diseased.*—In a case mentioned by Mr. Henry Earle, these glands are stated to have assumed the appearance of grumous blood (Medico-Chirurg. Trans. vol. iii. p. 66.) in connection with fungoid disease in the brain.

43. *The sinuses filled with blood in different conditions.*—In general, on laying open the sinuses, a certain quantity of fluid blood more or less serous escapes, and an irregular clot, partly of fibrin partly of red particles, is found; but occasionally there is one clot of fibrin filling up the canal, while at other times there is no clot, but the whole is full of fluid blood. These varieties may depend upon very casual circumstances; but as they may sometimes throw light on the general condition of the patient, they should not be altogether neglected (page 120, 215, 226, 228, 367).

44. *Sinuses filled with fibrin.*—The sinuses of the dura mater have been

occasionally found completely filled with fibrin, as if wax had been injected into them and into the veins from which they receive their blood; plainly showing, by their appearance as well as by the state of the brain, that this condition had existed for a considerable time before death. The most striking instance of this state of disease will be found at page 57; and the appearances are represented in Plate V.; while the state of the brain, in which hundreds of small vessels have given way owing to the obstruction to the returning blood, will be seen by a reference to Plate VI.

45. *Sinuses inflamed*.—There can be no doubt that the sinuses must pass through the earlier stages of inflammation before they become ulcerated, though I have not met with them distinctly in that state.

46. *Sinuses in a state of ulceration*.—Pus is occasionally found in all the sinuses, and their internal lining in a state of ulceration or abrasion. This is often connected with long-continued disease in the neighbouring bones. I have never seen a recent case of this disease in the longitudinal sinus, but in the other sinuses I have (page 130).

#### VII. DISEASED APPEARANCES OF THE VESSELS ON THE SURFACE OF THE BRAIN.

47. *Air in the vessels*.—It is by no means uncommon to see a few bubbles of air in the large vessels of the pia mater immediately as the calvaria is removed (page 599); but it is probable that it has either found its way in during the operation of opening the head, or that the air has been entirely generated after death.

48. *Fibrin in the vessels*.—When the longitudinal sinus has been filled with fibrin, a corresponding state has been found in the large veins leading to it, giving the appearance of a solid wax injection (Plate V.); this occurs in a less degree in the vessels of the brain after death, as in other vessels of the body.

49. *Pus in the vessels*.—This is occasionally seen in conjunction with inflammation and the effusion of pus under the arachnoid; but whether the vessels in which it occurs are arteries or veins I am not able to say, though I believe they are veins. (Plate I. Fig. 1. p. 35.) There can be no doubt that such an affection of the vessels will add greatly to the general irritation accompanying the disease.

50. *Arteries ossified*.—This is a very common morbid appearance, particularly in advanced life; but the early stages of the disease are some-



times discovered in youth. The extent to which it sometimes goes is surprising; in this respect it varies in every case. The ordinary seat of the chief ossification is the carotids or the basilar artery; but the circle of Willis and all the arteries leading from it often participate, and even the distant ramifications which appear between the convolutions and come out upon the surface. (Plate XIX. Fig. 2.; Plate XVIII. p. 179, 281.) The deposit of a cartilaginous substance generally precedes the formation of actual bone, and is much more extensive; so that after we have removed the vessels under the impression of their being greatly ossified, we find, when they are dried, that a comparatively small portion is affected with bony deposit. This condition of the vessel leads to a very irregular distribution of blood in the brain, and paves the way for apoplexy.

51. *Aneurism of the arteries.*—This state of the vessels is by no means uncommon in the brain, occurring in the carotids just after they have entered the skull, and in the large branches. The bursting of these of course produces apoplexy; and sometimes they appear so to derange the circulation as to give rise to the rupture of other vessels, though the aneurism itself escapes (page 267, 614; Plate XIX. Fig. 3).

52. *Obliteration of arteries.*—The arteries about the basis of the brain are sometimes obliterated; so that we find even the connecting branches of the circle of Willis contracted, and useless as far as the circulation of blood is concerned.

#### VIII. DISEASED APPEARANCES OF THE ARACHNOID AND PIA MATER.

These two membranes are so intimately connected as to be scarcely separable from each other, except at the base of the brain; indeed we are seldom able to detach more than small shreds of arachnoid from the pia mater, and it is only in some parts that air appears to separate them when the blowpipe is employed. The arachnoid of the adult in its healthy state is supposed to possess very little vascularity, but its substance is so delicate that the vessels of the pia mater are distinctly seen through it; and when fluid is effused into the cellular membrane of the pia mater, some of the vessels appear evidently to lie on the surface of the fluid, as if they belonged to the arachnoid, and do not dip down between the convolutions. In the fœtus and the early state of infancy it is impossible to conceive of any structures more intimately connected, or in which the vessels seem more in common to the two: hence it is not easy to separate the

morbid affections to which these membranes are subject, and I shall speak of them in combination.

53. *Excessive vascularity of the arachnoid and pia mater.*—No appearance is more likely to deceive us than this, because casual circumstances often produce much influence over the state of the vessels, and it is very difficult to draw a just distinction between the arteries and the veins. If the head be placed low shortly after death, and kept so, the vessels will be much injected, and the contrary if it be kept high; so likewise, if the chest has been opened before the head, and the blood is in a fluid state, the brain may be almost drained of blood before it is examined. Moreover, there is great reason to believe that frequently, as the blood recedes from the extremities during the act of dying, parts lose that appearance of vascularity which they before possessed, as the external parts and the skin are known to do. The larger arteries are easily distinguished by their situation and their texture, although they are often filled with blood as dark-coloured as if it were venous; and the large veins which are seen converging towards the sinuses cannot be mistaken: but with regard to the smaller ramifications, little that is satisfactory can be made out in the usual mode of investigation, and without very skilful injection. To a certain extent, however, the eye informs us of a prevailing state of vascularity; and where this has been great, we often find that the colour becomes more intense the longer the brain is exposed. The most marked *arterial* vascularity I ever witnessed, appeared to me to be the result of a chronic inflammation, with congestion of such long standing, that the fine arteries had gradually become enlarged, so as permanently to admit the red particles of the blood. (Plate XV. page 185 & 193.) The vascularity, when decidedly *venous*, gives a general dusky or purple hue, and is marked by the great augmentation of the veins running to the sinuses. This is seen in cases of apoplexy (page 307) and epilepsy (page 530.), and very particularly in the large veins, when the ventricles have been long distended with fluid (page 50 & 363), or in cases of long-continued paralysis from lead (page 632); but the most striking case of venous congestion I have seen, was in an old man who died with fever and emphysema of the lungs. (Plate XVII. page 219.)

54. *The arachnoid thickened and opaque.*—The arachnoid and pia mater in their perfectly healthy state are transparent; but when taken from the convolutions, they form a pretty firm membrane even in health. I am not sure that I have ever seen the pia mater lose its transparency, though I

have seen the folds which pass between the convolutions more solid and thickened than natural; but both together, they sometimes assume a genieral milky hue (page 250, 365, 376), or sometimes become opaque in parts and spots (page 241, 247); and sometimes this opaque appearance follows most exactly the course of large vessels (page 626), as if it were the result of their pressure. That this opacity is chiefly in the arachnoid is rendered probable, because we find it very remarkable in those loose duplicatures of the arachnoid which are found about the basis of the cerebellum, where it is most demonstrable as a separate membrane. This opacity is probably the result of slow inflammatory action, and is frequently accompanied by slight serous effusion beneath the membrane; and where it exists to a considerable degree, is often found associated with chronic symptoms of paralysis (page 380), and often with such causes of irritation to the external parts of the brain as are accompanied by epilepsy (page 543: see also page 552). In the examination of cases of apoplexy followed by hemiplegia, we also frequently find some thickening of these membranes, with a corresponding loss of transparency (page 293, 298).

55. *Arachnoid marked with gray carbonaceous deposit.*—This appearance is quite analogous to that which has been mentioned as occurring in the internal lining of the dura mater, and is probably the result of blood effused into the texture or on the external surface of the membrane (page 148, 586).

56. *Arachnoid with osseous deposits upon its surface.*—This is by no means a common occurrence; indeed I do not remember to have seen it above once or twice, and then to a very small extent (page 126). The arachnoid of the spine is more often the seat of bony deposits, which are sometimes in plates as large as a sixpenny-piece, but generally much smaller; and in some cases this has been connected with diseases of decided nervous irritation (page 491, 604).

57. *Arachnoid dry.*—In many cases of high cerebral irritation, and where we have reason to suspect actual inflammation, this appearance occurs; and there is no reason to doubt that in this membrane, as in others, a defective secretion is amongst the well-marked signs of inflammation (page 27, 30, 155, 178, 180, 631).

58. *Arachnoid unctuous.*—The secretion of the arachnoid assumes a somewhat unctuous quality under irritation and inflammation, of which we have instances as attending phlegmonous erysipelas (page 92); and we likewise

find cases in which more decided inflammation may be supposed to have existed, as where the ear had been long affected with discharge (page 130); or encysted abscess had taken place in the brain (page 150); or hydrocephalus had occurred, connected with a tubercular tendency in the constitution (page 363). It has also occurred in cases of long-continued paralysis, where it may sometimes have been connected with the cause of the disease; but I think that it is more frequently a result of long deficient action (page 379).

59. *Serum effused externally to the arachnoid.*—Upon this subject I have already spoken (page 666). There is no doubt that this membrane is constantly secreting a serous exhalation, but it is unusual to find it in excess; and when it is so, it depends more frequently on an original hydrocephalic tendency than on ordinary inflammatory action.

60. *Pellucid serum effused into the pia mater.*—There is scarcely any appearance more common than a slight accumulation of fluid beneath the arachnoid, either covering the whole of the convolutions as with a watery blister,—which at first view is often supposed to be gelatinous,—or merely lodging in the angles produced by the neighbouring convolutions, or sinking down between the convolutions so as to separate them and compress them laterally; indeed this is so frequent an occurrence, that when the quantity is small, it is sometimes doubtful whether it is the index of any morbid action during life, or at all events, whether it is more than the effect of such congestion as forms rather a part of the process of death than a portion of the original disease. In proportion, however, as the quantity is considerable, we generally look upon it as more likely to have been connected with the disease: and we find it occurring in cases of congestion, whether from simple mechanical causes (page 223); or from cold (page 264); or in cases of suffocation (page 225, 227); or from organic obstructions in the chest (page 62, 230, 231): and from certain inflammatory diseases of the membranes, as erysipelas (page 95); and when to any great extent, it is usually accompanied with drowsiness, and often with subsultus of the tendons. In some cases of great debility, as in phthisis and diabetes, the accumulation of serum in this situation is so gradual that it sometimes scarcely produces any symptoms; the emaciation of the brain itself apparently making way for the accumulation, so that little or no pressure is the result (page 258, 260, 261, 265). We also find serum in this part after severe convulsion, as in epilepsy (page 518, 520, 546); or

hydrophobia (page 595); and so likewise in protracted cases of hemiplegia (page 289, 291, 293, 300, 307, 340), and chronic paralysis (page 632). This serous effusion is also found in certain diseased conditions of the body, and is a very common circumstance where the kidneys are granulated (page 232, 234, 237, 238, 241, 246).

61. *The serum opaque*.—When this is the case, it is generally to be considered the result of recent inflammatory action (page 363).

62. *The serum yellow with bile*.—This is one of the effects of jaundice, and shows itself very decidedly between the convolutions, where the fluid collects in larger quantities. (Plate XVIII. page 221.)

63. *The serum in the pia mater tinged with blood*.—This appearance results from small ruptures in the vessels of the pia mater, or sometimes from slight transudation, particularly in diseases where the blood retains its fluidity, and a tendency to transude through the coats of the veins is observed on the trunk and the extremities soon after death. The serum is also sometimes tinged with blood from the same cause, when a process of putrefaction begins to take place. These are circumstances which should be very cautiously taken into consideration in dissections conducted in reference both to medical and legal investigations.

64. *Blood effused under the arachnoid and into the pia mater*.—The quantity of blood found in this situation varies greatly; it is not unfrequent when severe convulsion has preceded death, to find small patches of ecchymosis, from the size of a sixpenny-piece to that of a crown, on the surface of the convolutions, as in hydrophobia (page 603), and in whooping-cough (page 216); the same occurs in cases of congestion from opium (page 203), and from suffocation (page 227); it also follows concussion from blows and falls (page 405, 408, 634, 636), but is often much more extensive, sometimes chiefly lying upon the surface of the convolutions, but generally sinking in between them and filling the meshes of the pia mater, the duplicatures of which, when drawn up from their situation, present the appearance of clots of blood, the coagulum being still retained within the meshes: when the quantity is great, it compresses the convolutions laterally, increasing very much the intervening spaces. Occasionally blood is effused in the same situation from the rupture of vessels, owing to obstruction in the large returning trunks (Plate V. p. 60), or from the rupture of vessels within the brain, the blood in this case forcing its way to the surface and becoming effused into the pia mater (page 276, 614. Plate XXI.

Fig. 1). Blood effused in this situation, if small in quantity, may produce no appreciable symptoms, but if in larger quantities will be attended with all the usual indications of pressure, even to complete apoplexy. And Mr. Brodie has observed, I think justly, that a given quantity of blood will produce more symptoms, when deposited between the convolutions, than when more diffused upon the surface of the brain.

65. *Puriform lymph effused.*—This is an undoubted result of inflammatory action, filling the meshes of the pia mater with a semi-solid substance of a colour much resembling pus; it is not effused upon the surface of the arachnoid, nor does it remain upon the surface of the brain; but when the membranes are drawn off it separates with them, leaving the convolutions quite exposed; and when an incision is made into the membranes, none of the yellow deposit escapes. (Plate I. Fig. 1. p. 35. Plate IX. Fig. 1. p. 138. Plate X. Fig. 1. p. 137.)

66. *A layer of fibrin between the membranes and the cineritious substance.*—This appearance I have observed only once or twice, and it has been the result of apoplectic effusion, when a certain quantity of the blood has insinuated itself between the membranes and the brain; the red particles and the more fluid parts have afterwards been absorbed, leaving the fibrin behind. (Plate XXIII. Fig. 4 & 5. p. 307.)

67. *The membranes separated from the convolutions in consequence of accidents.*—This happens as one of the occurrences in concussion, and is generally accompanied with laceration of the convolutions.

68. *Arachnoid and pia mater separating from the brain with great facility.*—Occasionally these membranes seem ready to leave the convolutions, almost without the slightest force being applied. This is often connected with the effusion of a small quantity of serum in the pia mater, and at other times with some evidence of recent vascular congestion or excitement.

69. *The arachnoid and pia mater separating from the convolutions with difficulty.*—In this respect considerable variety is observed; but sometimes it is very difficult to detach the membranes, except in small flakes and shreds, even when there has been little evidence of disease before death. At other times, when there has been evidence of inflammation and inflammatory irritation, and effusion has actually taken place to a considerable amount into the ventricles, we find no effusion under the membranes; and so far from their appearing thickened, they are unusually thin and transparent, but are bound down to the convolutions so strongly that they can



only be brought away in small portions (page 649), and sometimes even the cineritious substance will seem on the point of tearing. At other times, when chronic inflammation has existed, it is absolutely impossible to take the membranes off without bringing away portions of the cineritious substance. This morbid condition is sometimes general over the brain, at other times extends over small spaces only. (Plate I. Fig. 5. Plate XXXI. Fig. 3.)

70. *Tumours growing from the arachnoid and pia mater.*—These are usually of a fungoid character, and are often associated with fungoid disease in other parts of the body; they become deeply impressed into the convolutions, producing irritation and symptoms of pressure: and when such symptoms occur in persons showing a tendency to fungoid disease, we are led to suspect that it is developing itself in the brain. (Plate XXX. Fig. 2. page 122.)

71. *Serous cysts formed in the membranes.*—These appear to be placed between layers of serous membrane, or to be contained in adventitious membranes; they vary from the size of a pea to that of an orange; they are of a most chronic character, often give no symptoms by which their existence is even suspected, and are probably coeval with life, not only the brain, but the bony parietes being often moulded to their form. (Plate II. Fig. 1. p. 438. Plate XXI. Fig. 4 & 5. p. 437.)

#### IX. APPEARANCES ASSUMED BY THE CONVOLUTIONS.

In the natural and healthy state the convolutions present their rounded edges to view, supporting each other and leaving small triangular spaces to be filled by the duplicatures of the pia mater and the vessels it contains; but still the whole forms nearly a smooth surface. The convolutions vary a good deal in size and distribution without any decided deviation from the healthy state, but they are liable to alterations which must be considered as truly morbid.

72. *The convolutions flattened.*—This appearance arises most frequently from the collection of serum within the ventricles, which in some cases goes to such an extent as to obliterate altogether the divisions of the convolutions (page 27, 30, 38, 56, 135, 150, 363, 649). The effusion of blood into the ventricles produces the same appearance (page 278, 283, 287); and the effusion of blood into the substance of the brain (page 289, 310). Abscesses forming in the substance of the brain (page 150, 155.

Plate XI.); or tumours, though generally in a more confined space, produce the same effect, compressing the convolutions of one hemisphere, or a portion of a hemisphere, according to the extent and situation of the mischief. Softening of the cerebral substance is another cause of this appearance (Plate VII., XV., XXVII.), and vascular congestion is capable of producing the same (page 518). The convolutions are occasionally found to be compressed without our being able to discover any obvious cause, except a disproportion between the volume of the brain and the cavity of the skull (page 528, 646); and there is sometimes a partial compression from the same cause, depending upon morbid growth and thickening of some particular portion of the skull, which is most frequently the frontal bone (Plate XL.); or the same flattening may be produced by thickening of the dura mater, or the deposit of blood or pus behind it (page 35, 130).

73. *Convolutions compressed laterally by fluid.*—When serum is collected in the cellular structure of the pia mater, it first becomes visible in the small triangular spaces between the tops of the convolutions, and then goes on to form a thin covering over the whole surface (page 50, 246); after which it accumulates between the convolutions, and seems to exert a considerable compressing force, reducing the width of the convolutions very greatly (page 178, 245). This accumulation acts sometimes with so much force as to prevent the convolutions being flattened from serum or blood effused within the brain (page 243, 291, 293); it is generally observed in both hemispheres, but is sometimes confined to one, more particularly if any disease exists in the opposite hemisphere, which, by compressing the convolutions from within, operates to prevent such accumulation in the external parts (Plate XV.). This lateral compression of the convolutions likewise sometimes arises from blood effused between them, as in cases of concussion (page 634).

74. *The convolutions corrugated.*—This appearance is most frequently observed in elderly persons, and seems to depend on a certain degree of dwindling of the substance. The convolutions lose their usual plump rounded form, and fall into small rugæ and dimples: this is generally attended with an obvious diminution in the thickness of the cineritious substance, which sometimes separates easily from the medullary matter; and it is observed that some imperfection of intellect often accompanies this condition of the brain (page 374, 615. Plate XXXI. Fig. 4).

## X. DISEASED APPEARANCES OF THE CINERITIOUS SUBSTANCE.

This substance varies a little in its colour in almost every subject, but in health the variation is small, and the natural colour may be considered a light fawn-coloured brown.

75. *The cineritious substance of a very light colour, scarcely distinguishable from the medullary matter.*—This is a condition which is observed particularly in those who have suffered from chronic disease, which has slowly reduced their general strength and diminished the energy of circulation; and not unfrequently in such cases slight serous effusion has taken place into the pia mater. It is observable in the cerebellum as well as the cerebrum.

76. *Cineritious substance inclining to a rose colour.*—This is frequently very striking immediately that the arachnoid and pia mater have been removed, and is probably the result of recent excessive arterial action in the part. In other cases it is particularly observable on the inner layer, sometimes confined by a distinct line of separation from the outer part of the cineritious substance (page 580), at other times imperceptibly shading into it (page 650).

77. *Cineritious substance of a gray colour, and assuming in some cases a deep carbonaceous hue.*—This colour varies greatly in intensity. It is the result of excessive venous congestion, and is sometimes increased by the morbid condition of the blood, produced by its imperfect decarbonization. The vessels filled with dark blood may often be distinctly seen by the assistance of a lens (Plate XIX. Fig. 1), and the numerous orifices by which they have communicated with the pia mater may be seen, of unusual size, upon the surface of the convolutions. This state is usually attended with decided symptoms of congestion and of cerebral oppression during life (page 219, 632): it is occasionally the result of fevers, particularly when they are accompanied with obstruction in the lungs (Plate XVII. page 219). In cases of bronchitis (page 231), in diseases of the heart which greatly obstruct the circulation (page 230), and in cases where suffocation has produced death (page 227), we find this gray appearance of the cineritious substance.

78. *The different layers of which it is composed unusually distinct.*—In this case the division between the layers is sometimes marked by different shades of the habitual colour, or sometimes by dark gray shades from venous congestion, or by the unusual pinkness either of the external or the

internal layers. There are usually three layers, thus pretty distinctly marked, though occasionally the eye is capable of distinguishing six (page 18, 219, 574).

79. *The external layer separating from the rest with facility.*—It is not at all uncommon to find a certain tendency to separate in the external layer; but this is occasionally so marked in elderly persons and in those who have laboured under symptoms of imbecility, as to be obviously a morbid state. In these cases, when the membranes have been drawn off, if a convolution be gently pinched between the finger and thumb, a considerable portion, of about the thickness of a wafer or more, but uniform in its depth, comes away, leaving an even surface (page 302, 374, 615. Plate I. Fig. 6. Plate XXXI. Fig. 4). This state of the cineritious substance has appeared to me sometimes to be the result of habitual excess in fermented liquors (page 637), and is likewise found where febrile diseases have been accompanied with delirium and tremor (page 638). Although this condition of the cineritious substance is by no means uncommon, I do not know of any author who has referred to it, except Dr. Foville, from whose memoir on Mental Alienation I copy the following description :

“La plus constante de ces altérations est à mon avis la suivante : la partie la plus superficielle de la substance corticale a acquis ; dans une épaisseur uniforme et peu considérable, une consistance sensiblement plus forte que dans l'état sain ; en même temps, la consistance des parties les plus profondes de la même substance est diminuée de sorte qu'il est facile d'enlever à la surface une sorte de membrane d'une épaisseur uniforme, lisse en dehors, tomenteuse en dedans, d'une couleur plus pâle qu'à l'état sain. Les parties qui restent au-dessous sont, au contraire, beaucoup plus rouges, memelonnées, molles, et représentent, s'il est permis d'employer une comparaison très grossière, la surface d'une plaie, les bourgeons charnus, sur lesquels serait appliquée une sorte d'épiderme.”

80. *Cineritious substance adhering to the pia mater and separating with it.*—This is sometimes so combined with the state I have just mentioned, that only a pellicle of the cineritious substance is removed; but at other times a considerable quantity, or nearly the whole, comes away with the membrane. This unnatural adhesion appears to be the result of chronic inflammation (page 181, 367. Plate I. Fig. 5. Plate XXXI. Fig. 3).

81. *The cineritious substance remarkably soft over its whole extent, or in parts.*—It occasionally happens that the cineritious substance is of a soft

and pulpy consistence, either tearing from the convolutions in large pieces with the pia mater, as I have just described; or when that membrane has been detached, rubbing off with the greatest ease, and capable of being almost entirely removed by the force of water gently running over its surface. This condition I have seen attendant upon chronic effusion on the surface of the brain; and it is marked by convulsions and other symptoms of irritation, and with imbecility of mind during life. (Plate IX. Fig. 2. page 42. Plate XXXI. Fig. 3. page 367.)

82. *The cineritious substance through its whole thickness remarkably hard.*—This is a state which I have occasionally seen over small extents, and it is generally connected with some evidence of old inflammatory mischief in the part, as thickening or adherence of the membranes.

83. *Cineritious substance of a yellow colour, soft and degenerated.*—This is a condition which I have met with only occasionally in connection with softening of the medullary portion of the brain (Plate XIV. Fig. 1. page 178); and it is a matter of doubt whether it precedes or follows the disease of that part (see page 192).

84. *Laceration of the cineritious substance by the effusion of blood.*—We occasionally find the cineritious substance, both of the convolutions and of the corpus striatum the original seat of apoplectic effusions (page 281): at other times these parts become lacerated in a secondary manner, the first effusion taking place in the neighbouring parts (page 274, 276, 283); and we sometimes have the effusion of blood in smaller quantities in the cineritious substance in consequence of concussion, or as the result of congestion, as in cases of suffocation, or from taking opium. Apoplectic effusions of this kind are usually attended with convulsive symptoms.

85. *Laceration of the cineritious substance from concussion.*—This is a very common effect of severe concussion, and shows itself in two ways: by small ecchymoses or clots in the cineritious substance, which are often found in various parts at the same time; or by an abrasion of the surface, which is thus reduced to a pulpy state and mixed up with bloody points, giving the idea that the mischief has in part resulted from the tearing off of the pia mater (page 404, 405, 408, 633, 635.) Convulsion of the features and of the extremities of the opposite side is the frequent symptom attendant upon this lesion.

86. *Ulceration of the cineritious substance.*—The cineritious surface of the convolutions is sometimes found to be the seat of erosions, which are of a

yellow colour, and sometimes contain a true pus; at other times a kind of degenerated brainy matter; the arachnoid over these diseased parts often remains. It is probable that in most cases of this kind some mechanical mischief, analogous to that arising from concussion, has been the source of this morbid condition; and convulsive twitches, with various modifications of muscular spasm, frequently betray themselves through the progress of such diseases (page 146, 148, 578. Plate XIII. Fig. 1 & 5).

87. *Cineritious substance absorbed*.—This substance is sometimes very thin over the whole cerebrum or cerebellum; but besides that, I have seen it almost wanting over a small space, where a layer of lymph has been thrown out between the pia mater and the convolutions (Plate XXIII. Fig. 4 & 5.) In one or two instances I have also seen a clean excavation in the convolutions, as if some portion previously injured or diseased had been absorbed. (Plate XIII. Fig. 2.)

88. *Scrofulous tubercles* chiefly attack the cineritious substance, and are often confined to that part, until they extend by their increased size into the medullary substance, and implicate the membranes by adhesion (Plate XXIX. & XXX. Fig. 1; and XIII. Fig. 3 & 4). Tubercles of this kind produce various symptoms of irritation; and, as they are often comparatively slow in their progress, become the source of a succession of ailments, which very gradually disclose their real nature, and often give rise to the effusion of serum (page 620).

#### XI. DISEASED APPEARANCES OF THE MEDULLARY SUBSTANCE.

89. *Vascularity generally increased*.—The degree of vascularity varies with almost every change, and its excesses are often so fugitive that they leave scarcely a mark behind. We have indeed reason to believe, that after actual inflammation, a large portion of the vascularity is often lost at the time of death, so that it is only by the products which inflammation has left that we discover its existence. The natural colour of the brain, in spite of the numerous vessels with which it is pervaded, is almost a pure white; but it undergoes many deviations from this state, and amongst others, occasionally assumes an uniform pink tint, which we have reason to ascribe to excessive arterial action; though sometimes, and particularly in children, it seems to arise from congestion only (page 215).

90. *The orifices of vessels large*.—We always find, on making a section of the brain, that the cut surface presents a number of small indentations, from



some of which fluid blood issues, and from others it does not ; these are the orifices through which vessels pass, and if the brain is bent or drawn out gently they are considerably enlarged. The unusual size of these orifices bespeaks an habitual state of distention from congestion, and occurs frequently in disease (page 520).

91. *Vessels drawing out, as if filled with firm coagula.*—From causes which we cannot always appreciate, the blood coagulates more or less firmly in the fine vessels which pervade the medullary matter ; and particularly where death has been protracted this appearance occurs, so that sometimes the vessels or the coagula they contain are drawn out by the passing of the knife through the brain to the length of a quarter or an eighth of an inch. (Case C. page 217.)

92. *Blotches of fluid blood poured from the cut vessels.*—To a greater or less degree this is almost always observed when a section of the brain is made ; but when an unusual quantity of blood has been circulating in it, or the blood is unusually fluid, this appearance is greatly increased.

93. *Numerous small ecchymoses from disease.*—When great obstruction has occurred to the return of the blood through the veins and sinuses, as by the formation of strong coagula before death (Case XXIV. page 60), or by diseases in the sinuses, it sometimes happens that the vessels are ruptured in the brain, and numerous spots like petechiæ are found in different parts : and when these small effusions are very close to each other, they destroy the texture of the part, which becomes broken down, and of a brown colour. (Plate VI.) The same appearance is very frequently observed in connection with apoplectic effusions ; in which case the ecchymoses occupy the parts around the clot, and are probably sometimes the effects of the violence which the brain has suffered by the effused blood, and sometimes mark that original tendency to pour out blood from numerous vessels on which the effusion has depended. (Plate XXII.)

94. *Ecchymosis from concussion.*—If a patient die who has suffered a severe concussion, we generally find more or less evidence of laceration of the fibres of the brain, shown by the little round spots of ecchymosis arising from ruptured vessels ; these vary from the size of a pin's point to that of a pea, and they are situated in various parts of the brain. (Plate XX. Fig. 2, 3 ; page 404, 405, 408, 634, 636.)

95. *Marbled with a pink clouded appearance.*—When the brain is divided by a smooth incision, the cut surface of the medullary matter is in

health of a clear white colour, interrupted only by the distinct points which mark the cut vessels; but in certain states of vascularity the white is obviously clouded; and when this is carefully examined, the colour is found to depend chiefly on very minute cut vessels, but in part upon a slight stain which is acquired by transudation from the vessels, possibly occurring after death. When this clouding is of a pink colour, it is to be inferred that it has been the result of arterial action. (Plate XIX. Fig. 5. page 208.)

96. *Marbled with a purple cloud.*—When the marbling puts on a dark colour, we have reason to suppose that the circulation has been greatly retarded; and it often happens that this is connected with very imperfect transmission of the blood through the lungs, either from diseases of those organs or from the state of the heart (page 217, 235). This condition of the brain is sometimes attended with drowsiness and temporary loss of consciousness, capable of being restored by a little rousing or excitement: and it is sometimes found, when severe convulsion has taken place shortly before death, as in cases of epilepsy (page 520, 532): it is often an attendant on that condition of the vessels which leads to apoplectic effusions (page 300, 615); and in several cases I have observed it where the kidneys have been granulated and the urine coagulable (page 235, 243, 300, 532. Plate XIX. Fig. 6).

97. *Gray, from numerous small vessels* regularly distributed through the medullary matter, and filled with dark-coloured blood.—This condition, in a certain limited degree, is not unfrequent, and in its more decided form it has occurred in some cases of long-continued paralytic affections of the whole body, where the symptoms have rather bespoken congestion than effusion (page 632); in cases of death from suspension (page 223); and in some chronic diseases, as diabetes (page 261): but the most decided instance of this appearance was in an old man affected with fever, with most unusual symptoms of cerebral congestion. (Case CI. page 219. Plate XVII.) On careful examination of the cut surface with a lens, the small vessels on which the gray colour depends are easily perceived. (Plate XIX. Fig. 1.)

98. *Pervaded by blood, the serum of which is yellow from bile.*—When a section is made, the orifices of many of the vessels are seen surrounded by the yellow serum which has escaped; other vessels, in which the serum has not so completely separated, present their usual red appearance. This

occurs only in cases of jaundice; and it is not improbable that the desponding state of mind and tendency to sleep which often mark that disorder, depend upon the morbid condition of the blood. I do not remember to have seen the substance of the brain itself tinged with bile. (Plate XVIII. Fig. 3.)

99. *Increased volume of the brain.*—This is a condition of the brain which has been observed by many authors, and undoubtedly appears occasionally to exist. When the calvaria and the dura mater have been removed, the convolutions are seen flattened, without the subsequent dissection enabling us to detect any of the usual causes for such an appearance. The symptoms in these cases are chiefly those of pressure. (Case CLXXI.)

100. *Decreased volume of the brain.*—This is sometimes observed in old age, when the convolutions are apt to put on a contracted, puckered, and uneven surface (page 374. Plate XXXI. Fig. 4); also in some cases of great emaciation, where the brain seems to suffer a diminution in common with other parts of the body; and in these cases, the deficiency of medullary substance seems to be made up by a deposit of serum. I have observed this very particularly in diabetes (Case CXXII. and CXXIV.); as also in cases of phthisis.

101. *The brain flaccid, but remarkably tenacious.*—This condition differs from that which we designate hardness, as well as from that of softness, affording a different kind of resistance to the knife; and when a portion has been separated, it allows of being bent in every direction, and of even being drawn out to a certain extent without the apparent rupture of fibres. The brain in perfect health possesses the property of tenacity in a high degree, but as this varies considerably, I mention its excess as a deviation which is at least worthy of attention. (Case LXI.)

102. *The brain watery.*—We often find, that when serum has collected in the cavities or under the membranes, the brain still retains its natural firmness; and on the other hand, when there is little notable accumulation in these parts, the brain is sometimes wanting in firmness, not from any approach to that degeneration we technically call “softening,” but in such a way, that were it to occur in other parts, we might suppose a certain quantity of fluid to have been effused into the cellular tissue; and before the conclusion of the dissection, we find the instruments, the table, and the parts themselves moistened beyond what we can easily account for. I have

chiefly observed this in diseases accompanied by long wasting, or where there has been a general tendency to the effusion of serum.

103. *Showing the fibrous structure in those parts which are obviously fibrous, with greater or less distinctness.*—When the brain is carefully examined by dividing the hemispheres and passing the fingers between the convolutions and the corpus striatum, the fibrous structure is easily demonstrated; but in this and other parts there is great variety in the degree of facility with which it is unfolded; and as this must depend upon some minute change in the structure of the parts,—though it is often difficult to discover the nature of the change,—it is very important to mark it, with a view to future investigation. It is probable that when the natural division into fibres is somewhat obliterated, some change analogous to inflammation has occurred; and minute as the changes may be on which this difference in the structure depends, yet it may greatly interfere with the function of the brain.

104. *General induration of the medullary portion of the brain.*—This is a condition which, being a subject of comparison, is more frequently supposed to exist when it does not, than other diseases which are more positive in their characters. We constantly find, that in witnessing an examination after death, some of those who are present remark that the brain is either too hard or too soft. The fact is, that many circumstances influence the consistence of the brain, independently of actual disease in the organ; as, the duration of the disease of which the patient has died, the length of time which has elapsed since death, and the state of the weather. Still, however, though inattention to these circumstances may lead to error, there is no doubt that occasionally the hardness of the brain is morbidly increased by some slow action going on within it, which has been supposed of the nature of inflammation. This condition of the brain has been particularly recognized in some cases of chronic paralysis accompanied by increasing imbecility of mind. In most cases, however, when I have observed this degeneration in the medullary matter, disease has also existed in the cineritious substance, which has either been unusually soft, or has separated in an unhealthy manner from the convolutions. (Case XIX. and CLXX. Plate IX. Fig. 2. Plate XXXI. Fig. 3.)

105. *General softening of the brain.*—This, like the last-mentioned affection, is matter of comparison, and subject to the same sources of fallacy as the last; but frequently after protracted disease accompanied with ema-

ciation, the brain is decidedly less firm than in health (page 363); and we often find in these cases that when the scalpel is drawn over the cut surface, it readily scrapes off the brain, and meets with particular obstruction about the edge of the medullary portion where it joins the cineritious.

106. *Partial hardening*.—The brain is sometimes found hard and unyielding over a small portion of its extent, so that two or three convolutions, including both the medullary and cineritious portions, have almost a cartilaginous feel, and this not depending on any obvious tumour or specific disease, but probably the result of a circumscribed inflammatory action of old date, which is occasionally proved by the adhesion of the membranes at the parts. The same change is also found more deeply seated in the brain, and is often surrounded by a portion which has become softened. This hardness of a part of the brain is sometimes distinctly the result of injury either from blows or apoplexy.

107. *Partial softening*.—This is a very frequent disease, varying in its extent from that which affects a very minute space, to that which involves the greater part of one lobe or one hemisphere; it is a complete disorganization of the brain, which is sometimes reduced to the appearance of a curd; at other times is almost fluid, and varies in colour from a dead-white to a yellow or red from admixture of blood. It appears to arise from different causes. Dr. Abercrombie has satisfactorily shown that in many cases it is the result of decided inflammation:—this was the fact in some of the cases in this volume, as Case LXXIX., LXXX., and CLXVIII.; but in other cases it has appeared to arise from causes obstructing the circulation and producing a species of gangrene (Case LXXXI.); and sometimes it has been the result of other diseases, as tumours or apoplectic effusions, which have produced direct lesion of the cerebral matter (Case LXV., XXIV., LXXXIV., and CXXXVIII.)

The symptoms by which it is accompanied vary greatly; headache has generally formed a symptom of the early stages of the disease, and considerable pain has been experienced in the limbs of the opposite side, with some degree of spasm, convulsion, and gradually increasing paralysis (Case LXXXII.); but at other times it has produced sudden and decided hemiplegia, not to be distinguished from that produced by the rupture of a vessel (Case LXXXI.); see also Plate VII., XIV., XV., XVI., XXIII., XXVII., and XXVIII.

108. *Apoplectic clots*.—The blood, in sanguineous apoplexy, is effused

into the brain, either from some large vessel, or from a number of smaller vessels lacerating the substance, more or less extensively, and sometimes finding its way to the surface of the brain, sometimes entering the ventricles, in which latter case I believe cures to be excessively rare. The appearance of the recent injury varies considerably ; the clot is sometimes a solid mass, and sometimes appears composed of several smaller clots, and generally in some parts the medullary matter is seen mingled with the blood. As the time from the period of the effusion increases, the clot and the surrounding brain undergo changes ; if the cerebral substance has been tolerably healthy before the attack, the parietes become smooth, consolidated, and often very vascular, the clot loses its fresh sanguineous colour, and assumes a chocolate hue, thence passing into brown or yellow. The red particles at length entirely disappear, either leaving a cavity containing a little serous fluid and lined by a membrane, or forming a solid opaque mass, of a whitish colour, surrounded by the thick walls of the cyst. If the apoplectic effusion have come on after chronic change has been established in the brain, or a process of softening has been going on, the parietes do not become so defined, but the grumous mass either extends, or remains imperfectly separated from the surrounding cerebral substance. (See Plate XXII., XXIII., XXIV., and corresponding Cases.)

The symptoms by which the effusion of blood into the substance of the brain is marked, are all those which attend pressure in its most distinct form, often combined with such as accompany laceration of the substance and irritation of the external parts of the brain ; but it must be always borne in mind, that perfect apoplexy, and still more frequently the most distinct hemiplegia, takes place without any sanguineous effusion ; so that, when this event occurs, the previous history, in connection with some of the more prominent symptoms, can alone lead us to a probable conjecture as to the cause of the attack. Of sudden and complete hemiplegia, attendant upon softening, we have an excellent example in Case LXXXI. ; of the same form of hemiplegia, from chronic disorganization, in Case CLXV. ; of hemiplegia, from serous effusion, in Case CCCX. ; of hemiplegia, from tumour, in Case CCXCIII. ; of hemiplegia, probably from simple congestion, in Case CCLXXXVII. and CCXC., and by the attentive consideration of the previous symptoms, as well as those which marked the attacks, we shall observe some which at least present a clue to guide us in our diagnosis.



It is to the symptoms arising in consequence of apoplectic lesion that we are to look for the most numerous, if not always the most satisfactory, opportunities of connecting individual portions of the brain with the powers of certain parts of the body ; for though the first shock, occasioned by the rupture of a vessel, generally produces such extensive mischief as to prevent our coming to important conclusions at the moment, yet, as recovery gradually takes place, some part remains more completely paralyzed than the rest, and if an opportunity should at any future time occur of examining the state of the brain, we shall discover in what portion the chief injury has been sustained\*.

\* When a large part of this volume had passed through the press, and most of the remaining Cases were prepared, I had the gratification of becoming acquainted with Dr. Foville of Rouen, whose experience in the pathology of the brain has been very extensive, and whose anatomical demonstrations of that organ are simple and beautiful, and I own carry much conviction to my mind. In these demonstrations the fibrous structure of the brain is very plainly shown, and the fibres are traced from the anterior column of the spinal cord, through the pons Varolii, through the crura cerebri, and through the corpora striata and optic thalami, where their transverse or oblique section forms that interrupted white mass seen in the middle of the two cineritious bodies in the usual mode of demonstrating the brain. When these fibres have run forwards, and upwards, and outwards, as far as the bounds of the two cineritious bodies, that is, the optic thalami and corpora striata, three distinct layers of fibres are seen coming from them, along their whole length, *one* running upwards and turning round to form the upper part of the corpus callosum and meet the corresponding fibres from the opposite side in the centre ; the *second* layer going off into the substance of the hemispheres ; the *third* descending and then turning upwards to form the septum lucidum. The middle layer, going to the hemispheres, sends its fibres in a diverging direction, towards the cineritious convolutions, and when they arrive near to them they make a turn, forming a layer of fibres applied to the inner surface of the cineritious matter. The cerebellum, in like manner, is formed from fibres, coming from three origins, all forming together the peduncle of the cerebellum, which goes up the centre of that organ and unfolds itself like a mushroom inside of its plæxæ. Thus, in the cerebrum, it appears that the anterior fibres of the anterior columns of the spine, pass through the corpora striata and go to the anterior lobes of the cerebrum, while the posterior fibres pass through the optic thalami and go to the posterior parts of the brain : and it has accorded with the experience of Foville, Serres, and Pinel Grand Champ, that if any lesion takes place in the *anterior* lobe, the *lower extremities* suffer ; if in the *posterior* lobes, the upper extremities ; and the same is the fact with respect to lesions of the corpora striata and optic thalami ;—if the corpus striatum is injured, it is equivalent to an injury of the anterior fibres on that side of the cerebrum, and the leg suffers ; if the optic thalami is injured, it is equivalent to injury of the posterior fibres, and the arm suffers.

Dr. Foville considers the cineritious matter to be the seat of the active functions of the brain, and that the mind is chiefly influenced by derangements of that part, while the white matter is composed of fibres, which probably act as conductors, communicating the energies to the different parts of the body. On comparing the Cases in the present volume, many will be found which seem to correspond with the view now stated ; and as they were certainly not collected with any overbearing prejudice in its favour, they may be admitted as fair evidence : it will, at the same time, be seen that comparatively few bear directly on the point, and that a few are with difficulty reconciled.

Mr. Earle, in the 13th volume of the Medico-Chirurgical Transactions, considers the loss of sensation as strongly indicating that the disease, in cases of paraplegia, is in the brain itself ; and says that, in a case of this kind, if you stimulate the nerves going to a part, as the median or ulnar, the stimulus will not be felt to

109. *Suppuration, or diffused abscess*, occasionally occurs, in which case a mingled mass of disintegrated brain and pus and small clots of blood is found, and the surrounding brain, to a considerable distance, is involved. This is sometimes the result of injury, as in cases of wound, when hernia cerebri is often connected with it. (Case LXXVI. Plate XII.\*) It likewise occurs spontaneously; and the extent to which it has proceeded, before fatal symptoms have shown themselves, is truly astonishing. (Case LXXVIII.)

110. *Encysted abscess*.—This appears to be the most frequent form which suppuration assumes in the brain; for if the surrounding brain is tolerably healthy, a cyst is early formed around the limits of the inflamed part, and this cyst appears often to depend for its vascularity on the fine vessels of the pia mater. (Plate X. and XI. Case LXXIII., LXXIV., LXXV., and CCLXXIX.)

111. *Fungoid tumours*.—In many cases these tumours are distinctly to be traced as attached to the membranes (Case LXIV. Plate XXX. Fig. 2 and 3), but occasionally this connection is not to be discovered (Case LXV. Plate VII.); it may perhaps be found, as I have said above (page 656), that in cases approaching to the fungous character the disease is less obviously dependent on the membranes; and that when the disease is of a more scirrhous nature, as inferred from the appearances in other parts of the body, the membranes are more distinctly the original seat of the cerebral tumour;—this was certainly the fact in the two cases now cited.

112. *Melanotic tumours*.—When the body is extensively attacked by this peculiar form of disease, the brain does not escape; and Dr. Hooper has given us a representation of the fact in one of his plates. Melanosis appears closely allied to fungoid diseases, and when traced in the liver or other organs of the body, is found to assume a very analogous form and mode of growth. I have never met with a case in which I could examine this affection of the brain in its recent state, but it appears to attack the

the extremities, but only to a certain distance, that is, to the part where the sensation is becoming defective; whereas, if the paraplegia depends upon the spine, the sensation will be less impaired than the motion, and the stimulus applied in the course of the nerve will be felt throughout; and this he proposes as a valuable assistant in forming a diagnosis in diseases of this class.

\* Mr. Stanley, in the *Medico-Chirurgical Transactions*, has given a description of the appearance of the brain in this disease, which corresponds most precisely with the Plate here referred to. Dr. Thomson, in his *Report of the Military Hospitals of Belgium*, has also described the soft and pulpy mass to which the brain is reduced in cases of this kind.

brain indiscriminately on its surface and in its substance. There is no form of malignant disease whose ravages are more widely extended in every part of the body than this; and a very excellent case, illustrative of this fact, was published a few years ago by Mr. Fawcington of Manchester.

113. *Scrofulous tubercles* are amongst the most common morbid growths, occurring both in the cerebrum and the cerebellum, and are often found on the surface, or if deeper seated, are generally connected with the cineritious substance. They are sometimes like miliary tubercles on the membranes, and, as they increase, become attached and adherent to the dura mater, extending chiefly inwards, where they meet with the least resistance; they become opaque and yellow, then soften in the centre, forming a kind of abscess, surrounded by a cyst, firm and not unlike what we find around a softened tubercle in the lung; they vary greatly in size, from that of a millet-seed to that of a pea, and to the full size of an egg; and it is often a matter of doubt whether what appears to be a true encysted abscess in the brain does not owe its origin to this species of tumour. The symptoms of irritation which are induced by scrofulous tubercles are often very remarkable, and they seem to lay the foundation for hydrocephalic effusion. (Case LXIII., CCXCIII. Plate XIII. Fig. 3 & 4. Plate XXIX. & XXX.)

114. *Tumours arising from an alteration in the substance of the brain.*—There are some of these which are not referable to ordinary induration, being much more vascular in their structure, but still are scarcely separable from the surrounding brain, in the way of distinct tumours. (Case CLXV.)

115. *Tumours formed of cholesterine.*—This is a form of tumour which I have never seen, but which some of the French pathologists have mentioned; and when we remember the tendency which there appears to be in all parts of the body, occasionally to suffer from collections of this kind, it is highly probable that it should occur in the brain.

116. *Albuminous tumours.*—Dr. Abercrombie mentions some cases in which the tumours were decidedly of this nature.

117. *Bony tumours.*—This is another rare, though by no means unrecorded, occurrence; the bony mass is usually spongy, but sometimes more solid, and is deeply imbedded in the brain. (See Plate xii. fig. 7. of Hooper's Work.)

118. *Hydatids.*—The true acephalocyst hydatid is sometimes found in the brain. I have never met, however, with a recent case, but there are two preparations considered as such in the Museum of Guy's. (See Cat.

No. 1577, 1577 A.) Other parasitical animals are also occasionally found in cysts in the human brain.

## XII. DISEASED APPEARANCES OF THE VENTRICLES.

119. *Ventricles unusually small.*—Although it is difficult to specify what is the exact size or proportion of the ventricles, yet there are cases in which we can have no doubt in pronouncing them to be smaller than natural, and this I have observed in some instances when the brain itself has been morbidly contracted (page 374), as well as when the substance of the organ has appeared to exceed its proper volume (page 371).

120. *Ventricles containing too little fluid.*—The secretion of the ventricles seems sometimes to increase or diminish, as that of the membranes covering the convolutions, (page 371,) but in other cases they appear to act almost independently of each other, so that it is no unusual thing to find the ventricles distended, while the surface is rather morbidly dry (page 27, 30, 649), or, on the contrary, the ventricles very devoid of fluid when the surface is moist (page 374). I should say that in a majority of those cases where inflammatory symptoms have terminated in serous effusion into the ventricles, the arachnoid has been free from effusion, which may in fact arise from mechanical causes, for the distended ventricles compress the brain so closely against its parietes as to prevent the possibility of large accumulation.

121. *The ventricles distended with fluid.*—In the healthy brain a small quantity of fluid is always found after death in the ventricles, seldom exceeding a dram in each lateral ventricle, and the quantity in the smaller cavities is scarcely appreciable. There is reason to suppose that this fluid sometimes increases during death, or even shortly after, but when it exceeds two or three drams it may generally be considered morbid. It appears that there are various circumstances under which the unnatural accumulation takes place, and when the diseased action going on has a very strong tendency towards this result, the disease is often called from the circumstance hydrocephalus. This effusion is very frequently the result of undoubted inflammatory action (page 27, 31, 37, 39, 363, 644); at other times the fluid seems collected by a much slower process (page 45, 61, 130, 192, 367, 624). It is sometimes the result of congestion (page 243); often accompanies diseases in which debility appears to have induced congestion, as diabetes (page 260, 261), or where softening of portions of the brain has taken place

(page 179, 187), or cases of chronic paralysis (page 377, 379). It is sometimes coeval with existence, continuing to accumulate after birth, as in cases of chronic hydrocephalus. The extent of this effusion varies, from the natural small quantity to several pints; between one and four ounces may be considered the general quantity in moderately acute disease; but in proportion as the effusion is rapid, it is probable that the injury it produces will be the greater, and the symptoms more marked, so that in the most acute hydrocephalus we often find less than an ounce, whereas in the chronic disease we find eight or ten pints (Case CCV.). When the effusion takes place to such a large extent, the whole shape of the ventricles is lost, and the convolutions form little more than a lining to the skull. Sometimes the pressure of the fluid is such that it forces its way gradually through the central portion of the brain, and diffuses itself above the brain external to the arachnoid\* (Plate XXXIV.). Occasionally the other ventricles are greatly distended; and my friend Dr. Locock informs me that he once plainly traced the fluid in the tumour of spina bifida, as communicating with the fourth ventricles.

122. *Coagulable lymph in the ventricles.*—This is by no means a common occurrence; but when the inflammation has been acute, it sometimes takes place; it seemed to have occurred in Case LXXVII. In systematic authors we find it spoken of as one of the pathological appearances in hydrocephalus, and Dr. Stroud lately stated to me a case of this kind.

123. *Pus effused into the ventricles.*—It is not at all uncommon to meet

\* Since the observations in page 427 were printed, I have had an opportunity of knowing the result of two more cases in which the brain was punctured: in one case, the rapid accumulation after the operation so much disheartened the parents, that they refused to have it repeated; in the other, the fluid was drawn off either eight or nine times; and I saw the case two or three times during the early part of the treatment;—the accumulation was very rapid, the exhaustion great, and the child gradually sunk. The former of these cases was examined by my pupil Mr. Henriques, and the latter by Mr. Robert Dunn; in both, a very large quantity of fluid had collected, and the brain was so completely softened and disorganized, as to suggest the improbability of any operation succeeding. In both, the fluid had been effused within the ventricles; but in that which was examined by Mr. Dunn, the corpus callosum was destroyed, and the fluid had found its way freely into the cavity of the skull, so that the remnant of cerebral matter, as well as the blanched membranes, seemed to float in the water. Such being the result of this treatment, even in the hands of practitioners most experienced in it, and most interested in its success, we cannot but consider the advantage of its general adoption as problematical: it is, however, a question whether some rigid means of obviating inflammatory action after the operation might not in some degree obviate the destruction of the brain; for it is most likely that before the puncture is made, the brain is not in that softened condition in which it is found after death, and which is probably in part the result of mechanical lesion, owing to the want of support which the delicate brain experiences when the fluid is withdrawn; but is also probably in part the result of inflammatory action excited by the same circumstance.

with this circumstance as a result of inflammation (page 11, 14), and more particularly I have seen it when the inflammation has been induced by external violence (page 35, 162, 163). The pus in these cases generally subsides to the more dependent parts, as the bottom of the posterior cornua, leaving the fluid of the ventricles in its natural transparent state; it is, however, easily disturbed, rendering the whole turbid.

124. *Blood effused into the ventricles.*—This may result from violence, as in cases of concussion (page 404); or from the rupture of vessels by disease, as in apoplexy. The quantity of blood is sometimes so small as merely to tinge the serum (page 404); at other times, both the ventricles are occupied by a clot (page 287); but it very often happens, that when the blood finds its way into one ventricle, it fills it with a large coagulum, and as it communicates through a small rupture of the septum lucidum, or by means of the foramen of Monro, the more fluid parts only pass into the opposite ventricle, in which, therefore, little or no clot is formed, but the serum is highly coloured with blood (page 277, 291: see also page 274, 278, 283, 614. Plate XXII. Fig. 1. Plate XXIII. Fig. 1). The most rapid fatal terminations from apoplexy are those in which the effusion has been direct into the ventricles.

125. *Lining membrane of the ventricles vascular.*—This is not very frequently observed even in cases of undoubted inflammatory action, where fibrin or pus have been deposited; we must therefore suppose, that a large part of the vascularity is lost at the moment of death; indeed the very circumstance of the pressure kept up upon the surface by the fluid must in some degree lead to this result, as the powers of life lose their energy. It is more common to see the large venous trunks distended as they pass over the surface of the ventricles; and this is particularly the case where much fluid has accumulated or chronic disease has been going forward; in which case I conceive the fluid presses on the large returning veins (Plate II. Fig. 1).

126. *Lining membrane of the ventricles thick and hard.*—When the ventricles have been long distended with fluid, we find them permanently dilated, so that though empty they still retain their form; when this is the case, we often find that the membrane with which they are lined is greatly thickened, and appears to be rendered still firmer by a compressed layer of the surrounding medullary or cineritious matter (page 45, 367, 644). This, however, is not always the case; for occasionally the ventricle is distended, and the foramen of Monro open, of a size to admit the point of



the little finger, but still the membrane is not thickened (page 379). This thickened state is the result of chronic inflammation, and judging from the opaque appearance of the vessels beneath it, depends in part upon adventitious matter deposited upon the original membrane, approaching in this respect to the condition of the peritoneum in many cases of ascites.

127. *Lining membrane of the ventricles adherent to that of the opposite side.*—This is the result of inflammatory action, and frequently takes place from the surface of the corpora striata, which thus becomes partially attached to the opposite surface of the membrane. It also happens in the posterior cornua, where I have seen it so complete as to insulate a portion of the cavity (page 303).

128. *Lining membrane granulated.*—This is a result of inflammation, the surface of certain parts becoming scabrous, as if covered with fine sand; this appearance takes place on different parts, and is frequently very manifest about the foramen of Monro (page 624), or the peduncles of the pineal gland (page 260, 377).

129. *Surface of the ventricles slightly corrugated.*—When this occurs, it is usually in consequence of some chronic thickening with irregular contraction, and is seen both on the surface of the optic thalami and of the corpora striata, which are thrown by it into unnatural projections (page 374, 385).

130. *Parietes of the ventricles softened.*—It often happens, that the brain inclosing the ventricles is quite soft, though the membrane lining them remains entire: in some cases I have been inclined to ascribe this to the presence of fluid in the ventricles, but as it is only in cases where the fluid has appeared to accumulate by an inflammatory action, it is probable that this softening is the result of the original inflammation rather than of the irritation induced by the presence of the fluid (page 27, 363). The commissures are likewise often softened and even broken down under the same circumstances (page 39, 61).

131. *Walls of the ventricles discoloured by old sanguineous effusions beneath the lining membrane.*—This generally gives a stain, which varies from red to brown and yellow; sometimes the effusion has been simply beneath the membrane, but at other times the discoloured spot upon the optic thalamus or the corpus striatum is connected with deeper mischief in the substance of those organs (page 192).

132. *Commissura mollis variously diseased.*—This delicate part generally follows in a great degree the condition of the lining membrane of the ven-

trices or the closely surrounding parts. Thus we find it partaking of the general thickened and hard state of the membrane, so that it has even assumed the appearance of a thick round cord (page 367). When the lining membrane has been granulated, it has become hard and scabrous (page 624); when the parietes have been softened, we have found it soft and even broken down (page 39, 61); and when blood has been effused into the ventricles, it has been lacerated and torn through (page 274).

133. *Septum lucidum variously affected*.—This fine wall of separation between the two ventricles also in some degree follows the derangements of the surrounding parts: thus we find it thick and opaque where moderate chronic accumulation has taken place, with thickening of the membrane (page 624); at other times it becomes so attenuated by the distention of the fluid, that if the membrane is firm it is composed of the membranes only, and is quite transparent (page 644); at other times it is reduced to the condition of a net-work, allowing the fluid to pass through easily from one ventricle to another (page 260). In some cases, where there appears to have been more recent action accompanying the effusion, we find it soft (page 61, 187); and where blood has found its way into one of the ventricles, the septum lucidum is often ruptured (page 278, 287, 614. Plate XXII. Fig. 1).

### XIII. DISEASED APPEARANCES OF THE PLEXUS CHOROIDES.

134. *Plexus choroides pale and exsanguine*.—The quantity of blood in this plexus of vessels varies very greatly in a manner which is not always easy of explanation; but one circumstance frequently occurs, which is, that the plexus is peculiarly pale when considerable effusion has taken place into the ventricles, with symptoms of irritation and inflammation (page 18, 650); but still more commonly this is observed in cases where effusion has been connected with debility (page 192, 248, 261).

135. *Plexus choroides granulated or fleshy*.—The plexus is described in its healthy state as having, besides its numerous vessels, something approaching to a glandular structure, and this appears, under certain conditions, to become a more prominent part, so that instead of a fine tissue of vessels, it presents a granulated or fleshy appearance (page 343).

136. *Plexus choroides with transparent vesicles*.—Nothing is more common than to find a number of transparent vesicles attached to the posterior part of the choroid plexus where it sinks into the posterior cornu; these are

nearly globular and transparent, having fine vessels upon their surface ; the whole cluster sometimes resembles a small bunch of currants (page 18, 192, 379); and it is stated by Dr. Baillie, that they are readily inflated through the large vein which runs along the choroid plexus. I have, however, never observed them to be filled with blood. Occasionally these vesicles increase to a very large size, a curious case of which is represented in Dr. Hooper's Work (HOOPER, Plate xiv.).

137. *Plexus choroides with gelatinous tumours*.—I have in one or two cases seen the posterior descending portion of the choroid plexus occupied by a gelatinous fluid contained in a cyst, not perfectly globular, but flattened somewhat in the form of a bean. The last and best marked instance of this was in the case of a woman who died of apoplexy from blood bursting its way into the ventricles ; at the examination of which I was present, through the kindness of my friend Mr. Fernandez.

138. *Plexus choroides, with cheesy tumours*.—Occupying precisely the same part of the choroid plexus, we find ovoid masses of a cheesy consistence from the size of a pea to that of a middle-sized bean ; it has appeared to me that these are possibly the result of slight sanguineous effusions, which have undergone a change since their extravasation (Plate XIX. Fig 4. page 242).

139. *Plexus choroides with bony tumours*.—The same portion of the choroid plexus sometimes has within it deposits of bone assuming nearly the same form as the softer tumours ; and sometimes the bone occupies only the centre of the mass, which is otherwise not unlike the tumour last described. The circumstance that bone occupies the centre in this way, is so like what takes place in chronic scrofulous deposits in the mesenteric glands, and what occurs in very subdued or chronic pulmonary tubercles, that analogy would lead us to look to the same action as the origin of these choroid tumours. Of the symptoms produced by these various derangements of the choroid plexus we know nothing positively ; but it is scarcely to be doubted that they must produce occasional embarrassment in the circulation, and I believe are not unfrequently connected with attacks of apoplexy. (See observations, page 241.)

#### XIV. DISEASED APPEARANCES OF THE CEREBELLUM.

140. The diseased appearances of this part of the brain resemble in all respects, as far as the different structure of the two organs will allow, the dis-

eases of the cerebrum, of which various instances occur in the course of this volume; but the attendant symptoms have not been so striking or distinct as to render it advisable to recapitulate these various changes. There seems little doubt that both vascular and organic alterations in this part of the brain are often connected with great irregularities in the sexual propensities.

The TUBER ANNULARE and the MEDULLA OBLONGATA also partake of many of the changes to which the brain and cerebellum are liable.

#### XV. DISEASED APPEARANCES OF THE PINEAL GLAND.

141. Respecting the functions of this small mass, which in health resembles soft cerebral matter, little is known, and therefore it is more necessary that we should notice any change, however slight, which may occur in it. Some of the most marked varieties are, its containing or not containing particles of gritty matter; its being more than usually vascular; more than usually soft, or hard, or large, or of a corrugated form, or even distended with fluid like a cyst (page 89, 260, 589, 595, 605).

#### XVI. DISEASED APPEARANCES OF THE PITUITARY GLAND.

142. This organ is of a very peculiar texture, and from its situation, which is such as to protect it in the most remarkable way from injury, we are induced to suppose that it assists in some very important functions, but of what nature we are entirely ignorant. Much importance has been ascribed to this organ as connected with epilepsy: I have not, however, as yet succeeded in tracing this connection; indeed the structure of the gland is very apt to deceive us as to its changes; for in its healthy state it is a firm fleshy body so sunk in the sella turcica, that often in attempting to bring it into view we lacerate or injure it. Still, however, there is no doubt that it is sometimes out of proportion small and compressed; at other times larger than we should suppose healthy; sometimes the seat of small excavations, and even of suppuration; and in one case mentioned in the present volume, it was supposed to be altogether wanting. It is by no means impossible that it may exert some peculiar influence in epilepsy: but I have undoubtedly seen epilepsy where no obvious disease existed in the pituitary gland; and I have seen cases where it might be well supposed to be small and dwindled, but this depending entirely on that frequent occurrence in epilepsy, the thickening and morbid growth of the processes of the basis of the skull (page 301, 374, 382, 520, 644).



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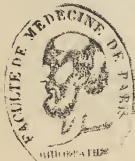
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THE END.

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